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Bulletin of The Society to Promote the Science of Management

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OFFICERS OF THE SOCIETY

President (1915) Harlow S. Person, Hanover, N. H.

Vice-President (1915) Morris L. Cooke, City Hall, Philadelphia, Pa.

Vice-President (1916) Charles Day, 611 Chestnut St., Philadelphia, Pa.

Secretary (1915) Henry W. Shelton, 35 College St., Hanover, N. H.

Treasurer (1915) H. K. Hathaway, 18th and Hamilton Sts., Philadelphia, Pa.

MEMBERS OF THE GOVERNING BOARD

All the officers, *ex-officio.*
Arthur E. Barter (1915), Norwood, Mass.
Sanford E. Thompson (1916), Newton Highlands, Mass.

NEW MEMBERS

The following were elected to membership in the Society, October 23:

Members

Eugene L. Folsom, Superintendent of Statistics, Waltham Watch Co., 101 Washington Ave., Waltham, Mass.

Keppele Hall, Engineer, Eastern Manufacturing Company, Bangor, Maine.

J. E. Otterson, General Superintendent, Winchester Repeating Arms Company, New Haven, Conn.

Walter N. Polakov, Consulting Engineer, Stamford, Conn.

Robert B. Wolf, Manager of Manufacturing, Burgess Sulphite Fibre Company, 128 Prospect St., Berlin, N. H.

Associate Members.

Mason T. Adams, Vice-President, Seth Thomas Clock Company, Thomaston, Conn.

Fred R. Ayer, Manager, Eastern Manufacturing Company, Bangor, Maine.

F. F. Beall, Vice-President in charge of Manufacturing, Packard Motor Company, Detroit, Mich.

Joseph A. Carlin, Registrar, Bureau of Water, City of Philadelphia, 634 So. Yewdall St., Philadelphia, Pa.

William H. Eaton, Treasurer and Manager, Eaton, Crane & Pike Company, Pittsfield, Mass.

Arthur Robert Zachert, Chief of Production Department, Babcock & Wilcox Company, Bayonne, N. J.

Junior Members

H. A. Bartholomaei, Balance Clerk, Eastern Manufacturing Company, 5 Broadway, Bangor, Maine.

John Harris Scoville, Production Engineer, Aberthaw Construction Company, 8 Beacon St., Boston, Mass.

OCTOBER MEETING

Memorial Meeting.

The meeting held in memory of Frederick W. Taylor in Houston Hall, University of Pennsylvania, Friday evening, October 22, was called by one of our distinguished guests "the high water mark of memorial gatherings." This phrase perhaps expresses the combination of dignity, earnestness, and warm feeling which marked the occasion. The assembled members and guests, who occupied every seat and were even standing in the aisles, listened with sometimes breathless intensity to the appreciations delivered by those on the platform.

The Provost of the University of Pennsylvania as host of the evening expressed the satisfaction the University felt in having recognized Mr. Taylor and honored him with a doctor's degree. He quoted at length from Mr. Taylor's address at the time, in which Mr. Taylor showed his grasp of one of the most acute problems in the life of the undergraduate student, i. e., the laxness of discipline and lack of training for thoroughgoing, responsible work. He contrasted an allowance of sixty unexcused absences in the college year without penalty with the fact that three such absences of an employee in business would be sufficient cause for dismissal. Mr. Taylor took the point of view that the undergraduate student should in some way be taught such good habits of application and responsibility as would stand him in good stead when he had to win his way later in the business world.

President Person, who presided, showed that scholars were interested in Mr. Taylor because he carried into the study of business problems the scientific method of the university research worker. He then introduced Mayor Blankenburg of Philadelphia.

The Mayor paid a glowing personal tribute to Mr. Taylor and told of his great assistance in the cause of good government in Philadelphia, first by advice and second by recommending the present Director of Public Works when he himself was unable to accept the position. Mayor Blankenburg read extracts from the appreciations sent by Charles de Freminville of Paris and Prof. A. Wallichs of Aix-la-Chapelle. President Person then read a letter from Prof. J. J. Sederholm, University of Helsingfors, Finland, and then introduced Colonel Vignal, Military Attache of the French Embassy at Washington, who had been especially designated to represent the French government at this meeting. It was a pleasure to listen to Colonel Vignal himself read the appreciation of Mr. Taylor from M. Henri le Chatelier of the Institute of France.

Quite as fully appreciated by the audience as the tribute of Mayor Blankenburg were the personal reminiscences which were now given by those who had worked with Mr. Taylor the longest and were among those who knew him the best. Mr. Carl G. Barth brought out vividly some of the strong points of Mr. Taylor's character as il-

DEC 29 1915

lustrated by anecdotes of their work together at Bethlehem. He felt that perhaps the greatest lesson taught by Mr. Taylor was the value of confidence in scientific methods and in the immutableness of natural laws. Mr. Henry L. Gantt told of the remarkable work of Mr. Taylor with whom he was associated in the early days at Midvale. Mr. Taylor, he said, realized at an early date how much of the world's work was based on precedent or opinion, and undertook to base all his actions on knowledge and fact. Mr. Sanford E. Thompson gave examples of Mr. Taylor's tireless energy day and night, his thoroughness and his fidelity to standards based on scientifically determined facts. He indicated some of the wider applications of scientific management, as in pulp and paper making, carpentry, earth work and concrete construction.

Mr. Louis D. Brandeis, after noting with regret that no official representative of organized labor was present, with characteristic lucidity and power crystallized for his hearers the great task to which, in his mind, the followers of Mr. Taylor should now set themselves in order that his great work may find fruition in the increased prosperity and welfare of every working man of whatever grade. This important task is the bringing of the general laboring classes, particularly those connected with the unions, into a recognition of the fundamental principles on which the science of management is based. Only by recognizing these principles and by coöperation can labor hope to gain, permanently, the result for which it is striving. To help labor understand this so that the development of scientific management and its application will be accompanied by the consent of all to whom it applies, is the particular task before the followers of Mr. Taylor.

Mr. James Mapes Dodge, Chairman of the Board of the Link-Belt Engineering Company, and one of the first manufacturers to recognize and adopt the Taylor System, fittingly closed the evening with an inspiring characterization of Taylor, the man, closing with the words, "we shall not look upon his like again."

The visit to *Boxly* Saturday morning was one which will long be remembered by all who were fortunate enough to be present. Weather conditions were ideal, the morning sun bringing out the aroma of the box hedges so that their fragrance pervaded the whole garden. Mr. Van Du Zee in an out of door talk gave a resume of Mr. Taylor's horticultural achievements. Besides transplanting without the loss of a single bush 1100 feet of box hedge over 100 years old, he conducted upwards of 3000 experiments on grasses resulting, among other things, in the ability to grow a putting green of superior quality in record time. This work was illustrated with visits to the putting greens, tennis courts and sod gardens.

Admiral Goodrich, in an impromptu talk of rare sympathy, related numerous stories of his associations with Mr. Taylor and the latter's important help to Admiral Goodrich's efforts to improve conditions in the Brooklyn Navy Yard. Every change or reform, before being submitted to the Navy Department for approval, was first threshed out thoroughly with Mr. Taylor. In these relations Admiral Goodrich was impressed by Mr. Taylor's insight, wide knowledge, fearless integrity, and frank determination to serve, not only one man or administration, but his country. With touching feeling, the Admiral acknowledged his personal indebtedness to a man whose close friendship he felt to be one of the great blessings of his life.

The visitors wandered at will through the grounds and many remarked on the variety and freshness of flowers blooming out of doors at that season of the year. The house, too, was thrown open to guests and there were many expressions of appreciation at the opportunity of seeing examples of Mr. Taylor's early work, tools and other unique memorabilia.

On the return to Philadelphia a short benediction was delivered by Rev. Langdon C. Stewardson at Mr. Taylor's grave in West Laurel Hill cemetery.

Business Meeting.

At the business meeting held Saturday afternoon October 23, the report of the Membership Committee, asking that those whose applications had been long pending be admitted to membership at once without the usual letter ballot and that certain sections of the constitution be temporarily suspended in order to make this possible, was adopted. The members elected are listed on the first page.

Mr. Hathaway, for the committee, recommended that the name of the Society be changed to the "Taylor Society to Promote the Science of Management" and that the change be voted on at the December meeting.

A committee of three, H. P. Kendall, chairman, M. L. Cooke, and H. T. Noyes, was appointed to consider insignia for the Society and report at the December meeting.

Frederick W. Taylor was unanimously elected to the special grade of "Honorary Member in Perpetuity." That grade was abolished immediately afterward so that it would no longer be open to anyone.

The following resolutions to Mrs. Taylor and to the University of Pennsylvania for their parts in making the memorial meeting such a success, were adopted:

Whereas, the Society to Promote the Science of Management, in pursuance of its plan to observe a fitting memorial to the life and work of its distinguished leader, the late Frederick Winslow Taylor, has been favored with the gracious hospitality of his devoted helpmate and companion, Mrs. Louise Marie Spooner Taylor; and

Whereas, the coöperation of Mrs. Taylor in this memorial has been an important and essential contribution to its proper observance; be it

Resolved, that the Society to Promote the Science of Management hereby expresses its hearty appreciation of the part taken by Mrs. Taylor in our joint rendering of due honor to the memory of her revered husband; and be it

Resolved, that this Society hereby records its confident hope that the adherence to Mr. Taylor's ideals and the helpfulness in their realization manifested by Mrs. Taylor during his lifetime, through the dark hours of its close, and to the present dedication of the Society to a continuation of that work, will continue with unabated interest and enthusiasm; and further be it

Resolved, that these resolutions be spread upon the permanent records of this Society, and that a copy hereof be duly engrossed and presented to Mrs. Taylor.

Whereas, the University of Pennsylvania, in pursuance of its function as a broad and progressive educational force, and in recognition of the value of the great work of the late Frederick Winslow Taylor to the community in which he lived and worked and to the world, generously granted the hospitality of its officers and its halls for the fitting observance of a memorial to Mr. Taylor as planned by the Society to Promote the Science of Management, be it

Resolved, that the Society to Promote the Science of Management hereby expresses its hearty appreciation of the courtesies and coöperation extended by the University of Pennsylvania in this behalf, and further be it

Resolved, that this resolution be spread upon the permanent records of this Society, and that a copy hereof be sent to the Provost of the University of Pennsylvania.

ANNUAL MEETING

New York City, December 10 and 11

Headquarters for sessions: Engineering Societies Building, 39th St., between 5th and 6th Aves. R. T. Kent, Chm., Montclair, N. J.

Friday, December 10.

8.15 P. M. "The Progressive Relation between Efficiency and Consent" by Robert G. Valentine, Industrial Counselor, Boston, Mass. (An abstract of Mr. Valentine's paper will be found on page 26.)

9.30 P. M. Informal Smoker.

Saturday, December 11.

9.00 A. M. Discussion of Mr. Valentine's paper.

12.30 P. M. Luncheon.

2.00 P. M. Business Session.
Election of officers.
Report of committee on constitution.

6.00 P. M. Dinner.

8.00 P. M. Business Session.
Reports of other committees.
Discussion of Society policy.

COMMENT AND NEWS

A memorial volume containing the addresses delivered at the memorial meeting Friday evening, October 23, will be published by the Society in the near future. This volume will contain also appreciations which have been received in letters from members and friends in connection with this memorial meeting. All those who have anything more to contribute, which they think would be appropriate for inclusion in this volume, are requested to have it in the hands of the Secretary by December 1st.

An interesting phase of the world-wide interest in the memorial meeting was its official recognition by the French Government. Ambassador Jusserand, at the instance of M. le Chatelier and with the assent of the President of the French Republic, appointed as his representative Colonel Vignal of the Engineer Corps, Military Attache of the French Embassy in Washington. In his letter M. Jusserand says, "It is very difficult for me to leave my desk in these days; I would else have craved, myself, the honor of taking part in the celebration and rendering homage to one whose tuition has made him one of the benefactors of mankind."

The report of Prof. R. F. Hoxie to the Federal Commission on Industrial Relations has been published by D. Appleton & Co., New York City, under the title, "Scientific Management and Labor." It will be remembered that associated with Prof. Hoxie in his investigation of the practice of scientific management were Mr. Robert G. Valentine, representing the employers' interests and Mr. John P. Frey, representing the interests of labor. This is a report of importance to every member of the Society, who is urged to acquaint himself with its contents without delay.

Realizing that the Society has a unique position among other organizations of its kind and that membership in it carries with it a corresponding distinction, one of the officers has made a suggestion, the value of which will be at once apparent. This is that all members giving publicity of any sort to either written or spoken material on the subject of scientific management make sure that the name of the Society is mentioned in connection with such publicity.

Will members, whose permanent mailing addresses have been changed during the past year, kindly notify the secretary at once of their new address? Only in this way can members be sure of receiving the material, including bulletins, sent out from time to time from the secretary's office. If every member will make it a point to notify the secretary promptly of any change of address it will materially aid the secretary and insure members from interrupted service.

The following registered at the October meeting:

Mr. and Mrs. W. J. Adam, Rahway, N. J.
Mason T. Adams, Thomaston, Conn.
F. Aederlin, Winterthur, Switzerland.
J. G. Aldrich, Providence, R. I.
L. P. Alford, New York City.
Thomas H. Anderson, 5711 Leonard St., Frankford, Pa.
R. L. Atwood, New York City.
Frank L. Babbott, Brooklyn, N. Y.
Geo. D. Babcock, Syracuse, N. Y.
Miss Edith Baer, Drexel Institute, Philadelphia, Pa.
F. A. Baker, 74 Clement Ave., Boston, Mass.
H. C. Barnes, Philadelphia, Pa.
A. E. Barter, Boston, Mass.
Carl G. Barth, Philadelphia, Pa.
J. Christian Barth, Philadelphia, Pa.
M. L. Bassett, 1918 W. Pacific St., Philadelphia, Pa.
D. M. Bates, Lewiston, Me.
Howard G. Benedict, Anderson, Ind.
R. J. Bennett, Philadelphia, Pa.
Joseph Bertenmorer, Lebanon, Pa.
Mm. Bierschenk, 3813 N. Franklin St., Philadelphia, Pa.
H. C. Bixter, Philadelphia, Pa.
Mrs. Lucretia L. Blankenburg, Philadelphia, Pa.
C. A. Branett, Philadelphia, Pa.
Frederick A. Bodell, Chester, Pa.
Charles E. Bonnie, 609 Harrison Bldg., Philadelphia, Pa.
John Breitenmoser, South River, N. J.
John M. Bruce, 5710 Grand Central Terminal, New York City.
A. T. Bruegel, % Hess-Bright Mfg. Co., Philadelphia, Pa.
Miss Theodora S. Butcher, Philadelphia, Pa.
Frank B. Butts, Boston, Mass.
Miss B. M. Cannon, % Wm. Filene's Sons Co., Boston, Mass.
Joseph A. Carlin, Philadelphia, Pa.
John W. Carter, 3823 N. 16th St., Philadelphia, Pa.
Horace B. Cheney, So. Manchester Corner, Pa.
Mrs. Clarence M. Clark, Germantown, Philadelphia, Pa.
Harry R. Clark, 1331 Parrish St., Philadelphia, Pa.
J. R. Clark, General Fireproofing Co., Youngstown, Ohio.
H. A. Connelly, 2535 W. Oakdale St., Philadelphia, Pa.
Morris L. Cooke, Philadelphia, Pa.
Mrs. Morris L. Cooke, Philadelphia, Pa.
Joseph C. Cope, New York City.
J. Coulson, Jr., Boston, Mass.
Charles M. Cox, 789 Preston St., Philadelphia, Pa.
M. J. Coyle, Slatersville, R. I.
J. M. Craigie, 2114 Tasker St., Philadelphia, Pa.
Wm. C. Dart, Providence, R. I.
Charles Day, Philadelphia, Pa.
Wm. R. DeField, Montgomery Ward & Co., Chicago, Ill.
Hugo Diemer, State College, Pa.
Mrs. Mabel N. Diemer, State College, Pa.
M. S. Dowd, South River, N. J.

Horace B. Drury, 140 East Blake Ave., Columbus, Ohio.
Wm. B. Easton, Philadelphia, Pa.
Monroe Eisner, Red Bank, N. J.
Sigmund Eisner, Red Bank, N. J.
F. L. Emerson, Auburn, N. Y.
Mr. and Mrs. F. L. Erwin, Auburn, N. Y.
William Andrews Evans, 5245 Walnut St., Philadelphia, Pa.
Richard A. Feiss, The Joseph & Feiss Co., Cleveland, Ohio.
Miss Ada Z. Fish, Wm. Penn High School, Philadelphia, Pa.
John A. Fitch, 105 E. 22nd St., New York City.
Eugene L. Folsom, Waltham, Mass.
Grover F. Fox, Philadelphia, Pa.
Mrs. Grover F. Fox, Philadelphia, Pa.
R. B. Fraser, Chicago, Ill.
John C. Frazee, Philadelphia, Pa.
Albert J. Freck, 2926 Columbia Ave., Philadelphia, Pa.
Walter D. Fuller, Curtis Pub. Co., Philadelphia, Pa.
Henry M. Gaines, South River, N. J.
Lee Galloway, New York City.
H. L. Gantt, 2915 Singer Bldg., New York City.
Edwin F. Gay, Cambridge, Mass.
G. H. Gebhardt, Philadelphia, Pa.
Frank B. Gilbreth, Providence, R. I.
Mrs. Frank B. Gilbreth, Providence, R. I.
Laura D. Gill, New York City.
Mary Barnett Gilson, Joseph & Feiss Co., Cleveland, Ohio.
Bryant B. Glenny, Jr., 253 Main St., Buffalo, N. Y.
E. L. Godfrey, Philadelphia, Pa.
Hollis Godfrey, Philadelphia, Pa.
Francis Goodell, 4432 Chestnut St., Philadelphia, Pa.
Rear Admiral Goodrich, U. S. Navy, Pomfret, Conn.
Earl G. Gordon, 1740 Green St., Philadelphia, Pa.
Harold P. Gould, Chicago, Ill.
Arthur B. Green, Portland, Me.
Wm. Green, Jr., 2963 D St., Philadelphia, Pa.
Mr. and Mrs. W. Herman Greul, 11 Ave. and 26 St., N.Y.C.
H. J. Guild, Bangor, Me.
G. A. Gulowsen, Huguenot Park, L. I., New York City.
Keppele Hall, Bangor, Me.
Mrs. Keppele Hall, Bangor, Me.
Karl R. Hammond, Newton, Mass.
H. K. Hathaway, Philadelphia, Pa.
Henry J. Harze, 2026 Pemberton St., Philadelphia, Pa.
Harry Hasson, 1810 Hamilton St., Philadelphia, Pa.
W. W. Hemmerly, New Haven, Conn.
Charles Herrmann, South River, N. J.
Karl Herrmann, Lebanon, Pa.
Milton C. Herrman, New York City.
Jos. C. Hirschman, South River, N. J.
Charles N. Hoffman, Lebanon, Pa.
C. M. Holcomb, Philadelphia, Pa.
A. Holmes, 4933 Knox St., Philadelphia, Pa.
E. A. Holt, Philadelphia, Pa.
Otto W. Huse, Philadelphia, Pa.
Herman J. Hutkin, 2629 S. Alder St., Philadelphia, Pa.
Miss Mary H. Ingham, Philadelphia, Pa.
Arthur C. Jackson, % Miller Lock Co., Philadelphia, Pa.
K. W. Jappe, P. O. Box 1405, New Haven, Conn.
A. S. Jenkins, Philadelphia, Pa.
Lyle L. Jenne, Philadelphia, Pa.
Miss E. Jennings, 1802 West Berks St., Philadelphia, Pa.
K. F. Jensen, South River, N. J.
Nathaniel Johnson, 1905 Morris St., Philadelphia, Pa.
Fred W. Jones, 13 Beach Ave., Auburn, N. Y.
J. M. Jones, Philadelphia, Pa.
Henry P. Kendall, Norwood, Mass.
R. T. Kent, Montclair, N. J.
Wm. Kent, Montclair, N. J.
Robert Kepner, 6459 Upland St., Philadelphia, Pa.
C. E. Knoeppel, New York City.
Wm. E. Kuen, 2311 N. 18th St., Philadelphia, Pa.
Yutaka Kunimatsu, Otaru, Japan.
F. L. Lamson, Norwalk, Conn.
C. N. Lauer, 611 Chestnut St., Philadelphia, Pa.
Wilfred Lewis, Haverford, Pa.
Wm. O. Lichtner, Boston, Mass.
W. W. Macon, Editor Iron Age, New York City.
John E. Markham, 552 Bourse Bldg., Philadelphia, Pa.
B. C. Mateer, Chester, Pa.
Harry Maull, 6054 Vine St., Philadelphia, Pa.
Robert Maull, 423 N. Horton St., Philadelphia, Pa.
Robert B. McArdle, 202 N. 27th St., Camden, N. J.
R. M. McClearg, 215 Water St., Brooklyn, N. Y.
F. M. B. Merithew, Boston, Mass.
Dwight V. Merrick, 34 Gramercy Park, New York City.
C. C. Miles, Brooklyn, N. Y.
Fred J. Miller, New York City.
L. A. Miller, Curtis Pub. Co., Philadelphia, Pa.
Miss Frances Mitchell, Chestnut Hill, Pa.
C. W. Mixter, New Haven, Conn.
C. E. Moldrup, Philadelphia, Pa.
Ernest Moses, 4913 Keyser St., Germantown, Pa.
H. A. Moul, So. Chester Tube Co., Chester, Pa.
George W. Norris, Jr., 3746 N. 13th St., Philadelphia, Pa.
F. E. Northime, Philadelphia, Pa.
Henry T. Noyes, Rochester, N. Y.
J. O'Neill, Chester, Pa.
J. E. Otterson, New Haven, Conn.
Mrs. Frank A. Pattison, Colonia, N. J.
H. S. Person, Hanover, N. H.
Clayton W. Pike, Philadelphia, Pa.
Walter N. Polakov, Stamford, Conn.
R. Poliakoff, Moscow, Russia, (Hotel McAlpin, N. Y. City.)
Samuel Polloe, 3617 No. 18th St., Philadelphia, Pa.
John Rae, 4945 Larchwood Ave., Philadelphia, Pa.
Harry R. Ranck, 1425 N. Camas St., Philadelphia, Pa.
Gould Ranft, 2103 N. Park Ave., Philadelphia, Pa.
C. H. Reiff, 2546 N. Sartain St., Philadelphia, Pa.
J. C. Regan, Stamford, Conn.
J. L. B. Rheinfeldt, Packard Motor Car Co., Detroit, Mich.
Calvin W. Rice, New York City.
E. C. Richardson, Waltham, Mass.
Wm. Rickert, 2639 N. Orianna St., Philadelphia, Pa.
C. H. Roberts, Philadelphia, Pa.
Miss Nina S. Rogers, 1802 West Berks St., Philadelphia, Pa.
William G. Rose, Cleveland, Ohio.
Charles Roummel, 2420 W. Hagert St., Philadelphia, Pa.
Edward L. Ryersonf, Chicago, Ill.
W. Sammons, Chicago, Ill.
H. V. R. Scheel, Passaic, N. J.
John B. Scheel, Passaic, N. J.
F. A. Schmidt, South River, N. J.
Jacob Schnelli, South River, N. J.
G. E. Schulz, 1812 Green St., Philadelphia, Pa.
G. E. Schulz, Oshkosh, Wis.
R. E. Sharp, Coatesville, Pa.
Henry Wood Shelton, Hanover, N. H.
A. R. Shipley, Thomaston, Conn.
Oberlin Smith, Bridgeton, N. J.
R. Mayo Smith, Norwood, Mass.
John J. Smythe, Jr., 1715 Edgley St., Philadelphia, Pa.
Elmer Spangler, 821 N. 28th St., Philadelphia, Pa.
E. H. Spooner, Boston, Mass.
R. H. Stanforth, Springfield, Mass.
Edward D. Stenven, 629 W. North Ave., Baltimore, Md.
Rev. Langdon C. Stewardson, Greenwich, Conn.

Harold Sting, 2041 N. Woodstock St., Philadelphia, Pa.
Leroy Tabor, 2513 So. Garnet St., Philadelphia, Pa.
Ida M. Tarbell, New York City.
R. P. A. Taylor, Philadelphia, Pa.
C. Bertrand Thompson, Boston, Mass.
Sanford E. Thompson, Newton Highlands, Mass.
T. C. Thompson, Auto Elec. Co., Chicago, Ill.
Winfield Tobin, 5316 N. 12th St., Philadelphia, Pa.
L. S. Tyler, The Acme Wire Co., New Haven, Conn.
Paul B. Valle, New Haven, Conn.
R. G. Valentine, Boston, Mass.
Charles Vallone, 37 Alsace Ave., Buffalo, N. Y.
Colonel Vignal, Washington, D. C.
C. H. Vogel, Zurich, Switzerland.
L. E. Waldeck, Jersey City, N. J.
F. R. Wallace, Pittsfield, Mass.
Albert Walton, 133 S. 12th St., Philadelphia, Pa.
John S. Warner, Box 607, Palmyra, N. Y.
A. H. Williams, Philadelphia, Pa.
Henry H. Williams, Lebanon, Pa.
John H. Williams, New York City.
George F. Willets, Norwood, Mass.
Joseph H. Willits, Univ. of Penna., Philadelphia, Pa.
Robert B. Wolf, Berlin, N. H.
Charles Wunschel, 6046 Walton Ave., West Philadelphia, Pa.

PERSONAL RELATIONSHIP AS A BASIS OF SCIENTIFIC MANAGEMENT[1]

By Richard A. Feiss[2]

1. Given two establishments in the same industry, in the same locality, build for them the same buildings, equip them with the same machinery and establish for them similar methods of handling equipment and materials—yet, in the course of a short time, there will be a difference in both the quantity and the quality of their output. This difference in result will be caused by the difference between the two in the quality of their personnel. For this reason alone the question of personnel must ultimately be considered the real problem of management.

2. If one of the above plants were headed by a management of the ordinary or traditional type and the other by a management which fully realized the importance of personnel and had developed an active philosophy tending toward the solution of the personal problem, the difference in practical results would be so great as to be unbelievable by the uninitiated. In fact this difference alone would often spell failure in the one case and success in the other.

3. The managers of both plants would see the shortsightedness of letting buildings and other equipment run down for lack of upkeep and repair. Both would see the value of and put into practice means for running the machinery at the most efficient speeds and bringing into use the best tools and the best method of handling material. It would be taken for granted by both that anything that goes to the improvement and upkeep of these things would be a necessary expenditure or a wise investment. The ordinary management, however, would not think of applying the same laws of upkeep and improvement to the personal equipment.

4. The ordinary or unscientific manager believes that factory management consists of the handling of orders, materials, and machinery, and that the men in the plant are a mere adjunct to these things—a necessary evil. When this type of manager is confronted with the fact that his organization is less efficient that another he will lay the blame on his employees and say, "I haven't the same kind of people that the other fellow has." In making this statement he will be absolutely correct, but he does not realize that the fellow with the other point of view has developed a particular kind of people as an essential part of the responsibility of management.

5. The old type of management would at the best consider expenditures for the development of personnel as an unnecessary outlay forced upon it by unintelligent public opinion, or would consider it a politic expenditure which would bring a certain amount of cheap advertising at the expense of fair wages. The enlightened, or scientific type of management would consider expenditures of this kind not only wise, but also an investment bringing proportionately larger and more permanent returns than all other kinds. Full value of all expenditures or investments for upkeep and improvement of a plant can be realized only when sufficient investment of both time and money has been made for the purpose of improvement and upkeep of the personal side. In fact the management which has the correct viewpoint will find that the mechanical and material side of the organization will be better developed as a necessary incident to *personal* development than it would be where this point of view is reversed. This is well illustrated in the Clothcraft Shops of The Joseph & Feiss Company, where this philosophy has been the basis of its development of Scientific Management.

6. Only actual comparison of the mechanical and other developments in this establishment with those in the next best establishment in the men's clothing industry would suffice to prove this point. The industry generally is not in a very advanced state. The usual type of management is at the best only beginning to realize the existence of the personal side. As a result, machinery and equipment are almost universally limited to a few undeveloped or semi-developed types, regardless of whether or not they are most suitable for the purpose in the hands of the individual operator. In practically all these factories you will find only a few types of machines, and these set up and equipped as they come from the manufacturers and running at haphazard speeds. Shears and all other tools are any which the employee chooses to furnish for himself.

7. In the Clothcraft Shops, working from the personal point of view, tools are not only developed and prescribed with regard to their suitability for the purpose of individual accomplishment, but all tools are furnished and maintained by the management. Fully fifty per cent of the different types of machines in use at the Clothcraft Shops are not, as far as is known, used in any other establishment in the industry, and practically every machine in use has been developed so as to be specially adapted for its particular purpose in the hands of the individual who uses it. In like manner the proper handling of materials and the installation of other methods developed under Scientific Management have been introduced in this establishment as necessary steps in the development of the highest efficiency of the individual.

8. We believe the point of view outlined above to be of the essence of Scientific Management. Scientific Management aims directly at increasing the quality and quantity of the output of an organization by increasing the quality and quantity of the output of the individual worker. While Scientific Management in its application must necessarily go deeply into the question of improved machinery and equipment, and while this in itself makes for greater

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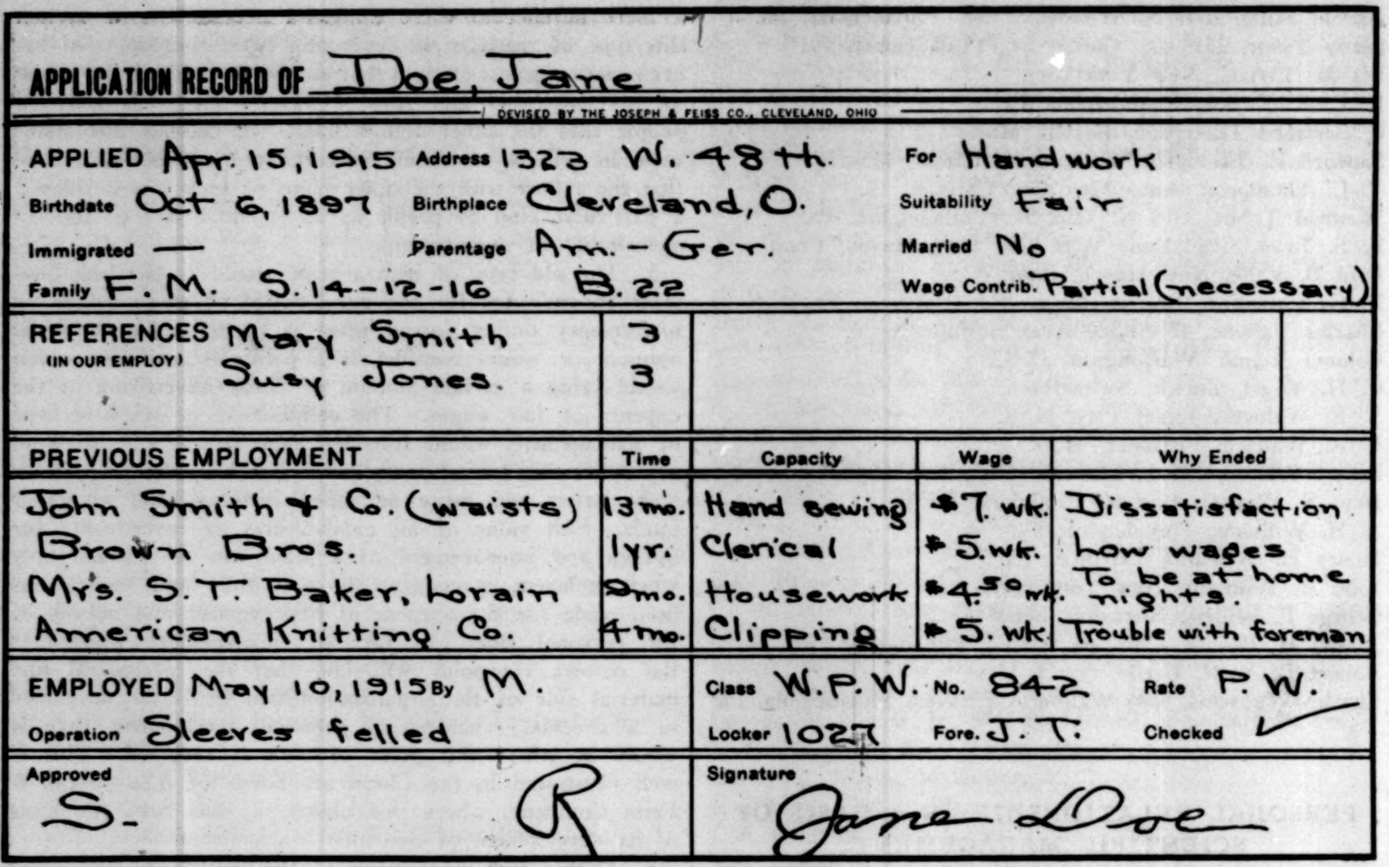
[1] A paper read before the Society to Promote the Science of Management, Philadelphia, Pa., October 23, 1915.

[2] Manager, The Clothcraft Shops of The Joseph & Feiss Co., Cleveland, Ohio.



APPLICATION RECORD OF Doe, Jane

DEVISED BY THE JOSEPH & FEISS CO., CLEVELAND, OHIO

APPLIED Apr. 15, 1915 Address 1323 W. 48th. For Handwork

Birthdate Oct 6, 1897 Birthplace Cleveland, O. Suitability Fair

Immigrated — Parentage Am. - Ger. Married No

Family F. M. S. 14-12-16 B. 22 Wage Contrib. Partial (necessary)

REFERENCES (IN OUR EMPLOY)			
Mary Smith	3		
Susy Jones	3		

PREVIOUS EMPLOYMENT	Time	Capacity	Wage	Why Ended
John Smith & Co. (waists)	13 mo.	Hand sewing	$7. wk.	Dissatisfaction
Brown Bros.	1 yr.	Clerical	$5. wk.	Low wages
Mrs. S. T. Baker, Lorain	9 mo.	Housework	$4.50 wk.	To be at home nights.
American Knitting Co.	4 mo.	Clipping	$5. wk.	Trouble with foreman

EMPLOYED May 10, 1915 By M. Class W. P. W. No. 842 Rate P. W.

Operation Sleeves felled Locker 1027 Fore. J. T. Checked ✓

Approved S. R

Signature Jane Doe

FIGURE 1

APPLICATION BLANK (FRONT)

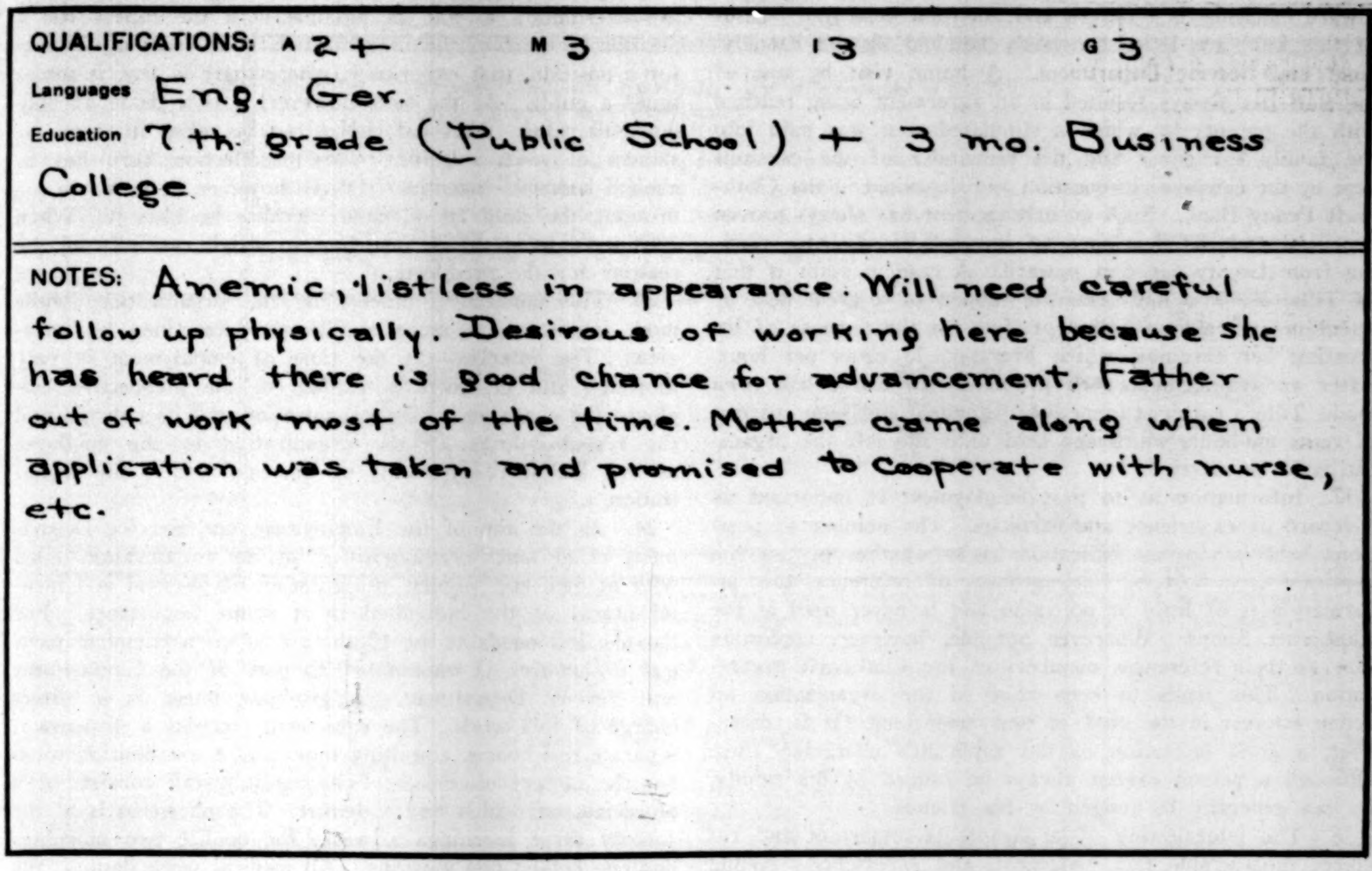
output, nevertheless, a machine is a tool, and, like any other tool, is devised to increase the efficiency of the individual to whose direct and personal control it must always be subject. The question of quality, even in the case where highly developed machinery is used, is almost entirely a question of the personal element. As for the question of quantity, the real measure of accomplishment is not output per machine or per tool, but output per man.

9. Scientific Management will not have completed its emission when it has determined in each industry the best method of handling materials and equipment in relation to workers, but when it has determined also the principles which underly correct methods of handling men. It is the purpose of this paper to show what is being done from this point of view at the Clothcraft Shops with the purpose of showing what a little effort in the right direction can accomplish. A further purpose of this paper is to bring to the attention of those interested in the future of Scientific Management the degree to which management is, in the final analysis, the handling of men and to emphasize that Scientific Management is scientific only in so far as it recognizes this fact.

10. From the point of view of the writer the responsibility of handling men from the time of their original selection is the most important responsibility of factory management. It is this responsibility which creates the function of employment in its broadest sense. It is only beginning to be recognized, however, that employment is a function of management. Even where considered an essential part of management, the employment function, with few exceptions, consists only of the original selection of applicants.

11. Scientific employment includes not only the selection of new employees, but also the keeping of every position in the organization permanently filled with the right kind of man or woman. The main part of scientific employment begins after the act of hiring is completed. Considered from this point of view, it is one of the most important functions of management and one that requires constant scientific analysis and development. For this purpose it is essential that every industrial organization should have a department for the purpose of administering this function. Mr. Frederick Winslow Taylor, in mentioning the disciplinarian function in his works, undoubtedly had the employment function in mind and recognized its vast importance. While a very small organization may not be able to afford even one person whose sole function is the business of employment, this activity should nevertheless be recognized as a separate and most important function and in such cases administered by the manager or assistant manager himself.

12. This employment function can under no circumstances be administered properly by some head or underling of an operating department. Many of the questions with which the employment department has to deal are questions in which an operating head is an interested party; his very position, therefore, disqualifies him from administering this function. The qualifications required of such a person are essentially different from those required of one administering an employment department. Moreover, the qualifications which are generally considered essential to the head of an operating department are special knowledge or mechanical ability and sometimes a certain amount of executive ability. While some executive ability is a useful asset in administering the employment function, the chief qualities required are capacity to investigate and judge impartially, tact, a sincere interest in human affairs and a personality that inspires confidence.



QUALIFICATIONS: A 2+ M 3 I 3 G 3

Languages Eng. Ger.

Education 7 th grade (Public School) + 3 mo. Business College

NOTES: Anemic, listless in appearance. Will need careful follow up physically. Desirous of working here because she has heard there is good chance for advancement. Father out of work most of the time. Mother came along when application was taken and promised to cooperate with nurse, etc.

FIGURE 2

APPLICATION BLANK (BACK)

13. All responsibilities of the management in the direction of personal service, directed toward the welfare and development of the individual, are part of the function of employment. For the purpose of administering this function, the Clothcraft Shops of The Joseph & Feiss Company have established an Employment and Service Department. In this organization this department is considered one of the most important adjuncts to the management.

14. While, as mentioned above, hiring is only a small part of the function of employment, nevertheless, the solution of the problem of selection is of great importance in its bearing on the whole future development of the worker. All applicants for positions are interviewed by one of the heads of the Employment and Service Department of the Clothcraft Shops. Certain specific information concerning the applicant is obtained in every case and entered on a blank for the purpose. (See figures 1 and 2.) Information deemed essential consists of:

Name and Address.
Date of application.
Date and Place of birth.
Date of Immigration, if foreign born.
Parentage.
Languages spoken.
Education.
Whether married or single.
Number in family.
Wage contribution to family support.
Record of previous employment.

The idea should be to keep such records as simple as possible;—only the important details being entered.

15. Languages spoken may be important in many organizations for various reasons. In this establishment English speaking applicants are given preference. In case employment should be given to an applicant who does not understand English, the applicant must agree to attend one of the classes in English which are held at the factory.

The Board of Education of the City of Cleveland has co-operated by furnishing teachers and text-books for these classes. Where applicants do not speak the English language, it has often been found that their residence in the country, and, consequently, their employment is considered merely temporary by them. In the case of those who do not speak the English language, it has been found very difficult to impart instructions and to obtain proper standards of output and quality. Of thirty-five employees (out of a total of nearly 800) who have not sufficient knowledge of English to understand instructions thoroughly, only one has reached efficiency equal to that of the best doing the same kind of work. Eight of this number have reached efficiency equal to less than the average and the remaining twenty-six are the least efficient at their respective operations. Moreover, people who cannot speak the same language, cannot understand each other thoroughly and therefore can never attain that state of friendly feeling which is the basis of co-operation and spirit.

16. The matter of wage contribution is important. Other things being equal, preference should be given to those who have to support themselves or whose contribution to the family income is a necessity. The custom of contributing the entire earnings to the family income is often an important element in inefficiency, especially where the contribution is in whole or in part unnecessary. Younger women who live at home are often required to turn over the entire contents of their pay envelopes to the head of the family, even where such a contribution is not necessary. By depriving the worker of the use of his earnings, the incentive

toward efficiency is removed and ambition destroyed. Cases of this kind are being constantly handled by the Employment and Service Department. A home visit by one of the staff has always resulted in an agreement being reached with the parents by which a stipulated sum was paid into the family exchequer and the remainder of the earnings kept by the employee in question and deposited in the Clothcraft Penny Bank. Such an arrangement has always proven beneficial and has developed an increase of efficiency ranging from twenty per cent upward. A case in point is that of Tillie B., who had been the subject of a great deal of attention over a long period of time for the purpose of increasing her earnings, which averaged 13 cents per hour. After an arrangement such as mentioned above had been made, Tillie's earnings immediately jumped and soon reached 22 cents an hour, which she held until she left the organization to be married.

17. Information as to past employment is important as a record of experience and earnings. The number of positions held is also an indication as to whether or not the applicant is a floater. For purposes of reference, this information is of little or no value and is never used at the Clothcraft Shops. Wherever possible, however, applicants give as their references members of the Clothcraft organization. This tends to keep alive in the organization an active interest in the kind of new employees. It is, moreover, a good indication of the applicant's character, since although a person cannot always be judged by his family, he can generally be judged by his friends.

18. The interviewing of applicants is important and requires considerable tact, judgment, and experience. Ample space should be left on every application form for making notes as to the individual's special qualifications as well as any other circumstances surrounding the case. As judgment is essential, and as judgment is influenced by immediate impression, in this establishment no one is employed on the date of application. Postponement of selection tends to bring all applicants in their proper relationship in the mind of one who has the responsibility of their selection. This method, moreover, tends to reduce the number of floaters who otherwise might get on the payroll.

19. Application records are classified as to sex, age, and apparent suitability. When a position is to be filled, one or more applicants are sent for. A definite time is set for their appearance and self-addressed postal cards are enclosed to be mailed in case appointments cannot be kept. At this time selection is made for immediate employment and the fitness of the applicant is more definitely determined.

20. As a rule, in industrial establishments, where the question arises at all, only fitness for the work is considered. There are, however, two kinds of fitness to be considered, provided a person is suited for industry at all; one is fitness for the position; the other is fitness for the organization. Of these the latter is by far the more important.

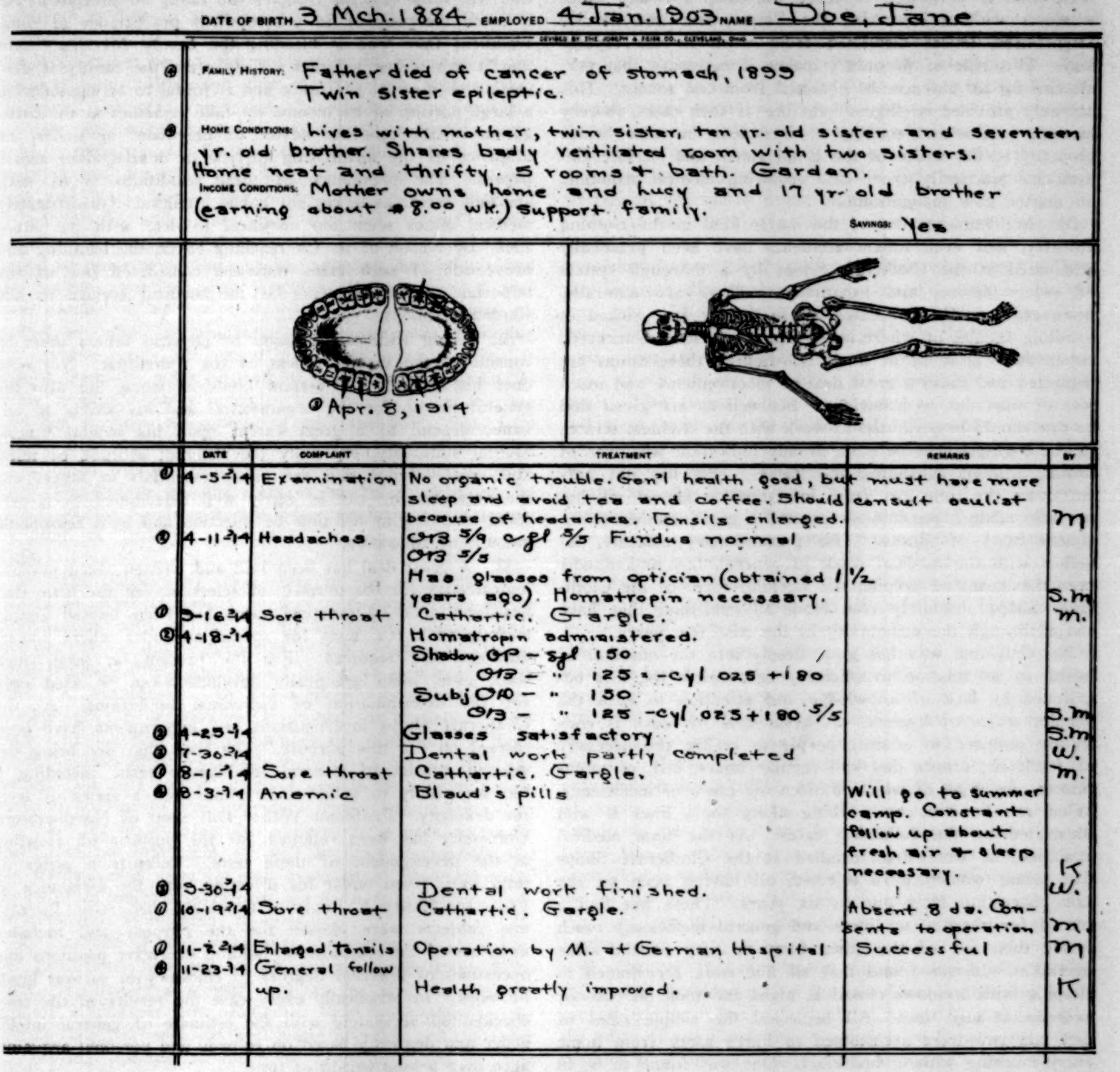
21. Fitness for the organization is chiefly a question of character. Every organization has a distinct character of its own, which is often recognized as being a tangible business asset. It is essential, therefore, that every member of the organization have a character sufficiently developed or capable of development to be in harmony with the character of the organization. This is the basis of *esprit de corps.* No matter how skilled or fitted one may be to do a given piece of work, if he is out of harmony with the spirit or character of the organization, he will be an everlasting detriment to himself and all others in the organization who come in contact with him.

22. The interview of the applicant by a trained head of the Employment and Service Department is the basis of pre-determining as far as possible both the fitness for a position and for the organization. In judging fitness for a position, past experience, where there is any, is sometimes a guide. At the best, however, it is a guide of only doubtful value. Personal choice can be taken in some instances also as a guide. This predilection furnishes in itself a valuable incentive. Often, however, it is a case of bringing the child up on candy because he likes it. When considered at all, it is important to weigh carefully all the reasons for the predilection.

23. The applicant's fitness for the organization, while more important, is more readily pre-determined by interview. The interview at the time of employment is very thorough and designed to explain to the prospective employee the character of the organization and its policies, and the responsibilities of the organization to the employee as well as the responsibility of the employee to the organization.

24. As the aim of the Employment and Service Department is to keep every position in the organization filled with fit men and women, the question of physical and mental fitness of the individual is of prime importance. For the physical needs at the Clothcraft Shops a complete medical department is maintained as part of the Employment and Service Department. A graduate nurse is in direct charge of this work. The equipment includes a dispensary, separate rest rooms, a waiting room and a consultation room for the factory physicians. The medical staff consists of a physician, an oculist and a dentist. The physician is at the factory three mornings a week, the oculist two mornings and the dentist one morning. All medical work done at the factory is paid for by the company. Outside service of the factory physician is furnished to employees and their families at special rates, except in instances where the Employment and Service Department recommends treatment at the company's expense. In order to faciliate physical examinations required, the time of taking on new employees is being regulated so as to coincide with the time that the physician spends at the factory. Physical examinations of all members of the organization are repeated annually or with greater frequency if there is cause.

25. The eye examination is of the greatest importance in considering applicants for certain positions. A preliminary examination is made by the nurse in order to discover any obvious defects of vision. Arrangements have been made by which, in case the oculist later prescribes glasses, they can be procured from a first-class optician at half the regular price. One of the greatest obstacles in connection with this work is the fact that many people who are in need of proper glasses have had glasses supplied to them by optical stores or by itinerant vendors without the advice of a practicing oculist. In most cases the trouble has only been aggravated. The benefits of an eye examination and the prescribing of proper glasses are readily apparent. In one case a young woman had worn the same glasses for a number of years. She had obtained them from a dealer whose business enterprise included the sale of glasses and jewelry. The young woman realized thoroughly that her eye-sight was poor and complained constantly of eye strain and headaches. She was an employee of the firm for a number of years and had always been more or less inefficient. Examination of her eyes by the factory oculist proved not only that her eyesight was very poor, but that the glasses which she had been wearing for six years were fitted with nothing but plain window glass. Fitting her with proper glasses not only entirely eliminated the headaches, but, within a period of a few weeks, resulted in an increase in efficiency to a standard equal to the best.



DATE OF BIRTH 3 Mch. 1884 EMPLOYED 4 Jan. 1903 NAME Doe, Jane

DEVISED BY THE JOSEPH & FEISS CO., CLEVELAND, OHIO

④ FAMILY HISTORY: Father died of cancer of stomach, 1899
Twin sister epileptic.

④ HOME CONDITIONS: Lives with mother, twin sister, ten yr. old sister and seventeen yr. old brother. Shares badly ventilated room with two sisters. Home neat and thrifty. 5 rooms + bath. Garden.

INCOME CONDITIONS: Mother owns home and Lucy and 17 yr. old brother (earning about $8.00 wk.) support family.

SAVINGS: Yes

③ Apr. 8, 1914

	DATE	COMPLAINT	TREATMENT	REMARKS	BY
①	4-5-'14	Examination	No organic trouble. Gen'l health good, but must have more sleep and avoid tea and coffee. Should consult oculist because of headaches. Tonsils enlarged.		M
②	4-11-'14	Headaches	OS 5/9 c gl 5/5 Fundus normal OS 5/5 Has glasses from optician (obtained 1½ years ago). Homatropin necessary.		S.M
①	5-16-'14	Sore throat	Cathartic. Gargle.		M.
②	4-18-'14		Homatropin administered. Shadow OD – sph 150 OS – " 125 ⌢ –cyl 025 +180 Subj OD – " 150 OS – " 125 –cyl 025+180 5/5		S.M
②	4-25-'14		Glasses satisfactory		S.M
③	7-30-'14		Dental work partly completed		W.
①	8-1-'14	Sore throat	Cathartic. Gargle.		M.
④	8-3-'14	Anemic	Blaud's pills	Will go to summer camp. Constant follow up about fresh air + sleep necessary.	K
③	9-30-'14		Dental work finished.		W.
①	10-19-'14	Sore throat	Cathartic. Gargle.	Absent 8 da. Consents to operation	M.
①	11-2-'14	Enlarged tonsils	Operation by M. at German Hospital	Successful	M
④	11-23-'14	General follow up.	Health greatly improved.		K

FIGURE 3.

MEDICAL RECORD

(1) Physician's records, entered in green ink.
(2) Oculist's records, entered in violet ink.
(3) Dentist's records, entered in red ink.
(4) Nurse's records, entered in black ink.

26. The importance of proper care of the teeth is realized by few. Many chronic cases of headache, neuralgia or stomach trouble have been directly traced to neglected conditions of the teeth or poor dental work already done. Only when one considers the number of ailments that can be traced to the neglect of the teeth, and the inefficiency and lost time that can be traced directly or indirectly to this cause, can one realize its importance. Of the hundreds of dental examinations made at the Clothcraft Shops, less than fifteen per cent of the cases were found to have teeth that were properly cared for and in good condition. Consultation with a number of practicing dentists in the city of Cleveland has brought out the fact that this percentage is considerably better than the average. Besides the permanent record kept of the condition of the teeth, a chart is given to every one who is examined and an estimate made of the cost of work where needed. The dental work at the factory is limited to examination, advice and prophylaxis. At the time of examination thorough instruction is given in the proper care of the teeth. With this, as well as with the rest of the physical examination, the most important features are the instruction given at the time of the examination and the systematic follow-up.

27. All the work would be of little value if the preventive side were neglected. Not only are accurate records kept for this purpose (see Figure No. 3) but it is part of the responsibility of every member of the Employment and Service Department to follow up the work in all of its phases at every opportunity.

No one is permitted to leave the shop for any cause whatever without consulting the Employment and Service Department, unless dismissed from work in the regular way. This rule of procedure makes it necessary that permission for all absences be obtained from one source. This not only provides intelligent handling of such cases, thereby insuring justice and equality of treatment, but also brings promptly to the notice of the Employment and Service Department practically every case requiring medical attention, no matter how insignificant.

28. Accidents are not of the major kind in the clothing industry, and even minor accidents have been practically eliminated at the Clothcraft Shops by a thorough system of safety devices and instruction. There are naturally, however, a number of cases where fingers are pricked in handling needles or where other minor injuries are incurred either away from or at work. Ordinarily these things are neglected and cause a great deal of inconvenience and much loss of time due to infections. Instructions are given that no one should be permitted to work with the slightest scratch or the slightest ache or pain, or any indication whatever of illness, without consulting the nurse. This has not only cut down the time lost from infections to almost nil, but has also made it possible to forestall a great number of incipient cases of illness. This precautionary measure, together with the medical work in general, has undoubtedly been the means of keeping the working force of the Clothcraft Shops absolutely free from all epidemics that have swept through the community in the past few years.

29. Only one who has gone deeply into the question of health in its relation to efficiency can realize the loss occasioned by lack of knowledge and attention to even the simplest rules of hygiene. A great deal of work is constantly required to educate people to realize the necessity of fresh air, proper diet and regular hours, lack of attention to one or all of which is often the cause of inefficiency. What can be done by working along these lines is well illustrated by the following cases. At the time medical examinations were first installed at the Clothcraft Shops five young women were selected, all having been on the same operation from one to six years. These five had a record for absence, tardiness and general inefficiency much worse than any of the other forty or fifty on the same operation. It was found that all five were accustomed to sleeping with windows closed at night and took no outdoor exercise at any time. All neglected the simple rules of diet and two were accustomed to hurry away from home every morning without breakfast. One was found to be in need of eye glasses. All complained of not feeling fit when they came to work in the morning and complained constantly of headaches and a general debility, which naturally resulted in much absence from work. The cases were interviewed separately and proper advice was given and the ultimate results of irregularity and inefficiency were thoroughly gone into. By consistent follow-up the advice was soon accepted by all, with the result that tardiness and absence were practically eliminated in all cases and efficiency was increased from twenty to fifty per cent.

30. One phase of this work is worthy of special mention. No one who has ever been in actual touch with the men and women of an industrial organization has failed to run across the case of the man who is down and out because of long sickness in his family. Doctor bills and bills for medicines are rapidly getting him deeper and deeper in debt or he may be brooding over what he thinks to be the last lingering illness of one of his family. A man with a load such as this can seldom hold up his end in either output or quality. In the vast number of cases, an investigation will show that his troubles can easily be alleviated. He is often the prey of an unscrupulous practitioner or some fradulent fake who is bleeding the family for every cent that it can scrape together. Very often the family is despairing of medical assistance and is found to be squandering a large portion of its income on fake remedies at the instigation of the ignorant advice of neighbors or under the influence of the advertising carried in unscrupulous newspapers. The prevalence of these conditions is of such amazing extent as to cry for public attention. Unfortunately medical ethics seem too unethical to deal with the situation. By reason of its far reaching effect, the handling and prevention of such cases must be considered one of the important accomplishments of the medical service of the Clothcraft Shops.

31. Along with the question of physical fitness must be considered the mental fitness of the individual. Not only does his capacity for certain kinds of work, but also his general fitness for the organization and his ability to advance depend to a great extent upon his mental fitness. Mental suitability, especially the inherent attitude of mind and spirit,—things that are prime essentials in fitness for the organization,—can be fairly well determined by a personal interview at the time of selection and by a reasonable amount of follow-up.

32. A great deal has been said and written about psychological tests for the purpose of selection, but the little that has been done of practical value has been limited almost entirely to a few tests for special aptitudes where special aptitudes are required. For the present, at least, such tests, even when practically developed, can be used only for the determination of individual limitations. At the Clothcraft Shops investigations and experiments have been carried on for this purpose. The tests that are being developed consist of general intelligence tests, including a test for ability to follow instructions and a series of tests for dexterity. Professor Walter Dill Scott of Northwestern University has been retained for the purpose of assisting in the development of these tests. Recently a series of tests were given under his direction with the assistance of Professor Henry A. Ruger of Columbia University. Twenty-one subjects were chosen for the purpose and included members of the organization holding executive positions and operatives of different degrees of efficiency in various kinds of work. In practically every case the results of the tests checked up accurately with the estimate of general intelligence and dexterity based on records and personal acquaintance over a long period of time.

33. The object of these tests is twofold. In the first place, with the best of care errors are bound to occur in original selection and placement. People are often placed on work for which they are not at all suited, and some are occasionally selected who are mentally unfit for the industry. This under no circumstances means that all the mentally deficient are unfit. There are, of course, all kinds of mental deficients and there are a great many different kinds of work in most industrial establishments that can be done as efficiently by the sub-normal, mentally, as by the normal. The human makeup is so complex that many instances have been found where a normal individual was incapable of reaching the same efficiency in certain kinds of work as a subnormal had reached.

34. Several cases were taken at the Clothcraft Shops of people who were apparently deficient mentally. A series of tests was made by the Binet method in order to confirm this conviction and in order to get an approximate rating of their mental capacity. In most instances, one who has not had intimate acquaintance with individual cases over

a long period of time would not suspect any mental deficiency. A case in point is that of a girl who had been in the employ of the firm for about four years. Being employed rather young, she was put on an operation of the simplest kind. While on this operation she became very efficient. The result was that she was advanced and for another year was tried on various operations without being able to make good. By this time everybody had become more or less disgusted with Mary at home and at the factory and Mary quit to find other work. She returned in a few months, and as her spirit was good, it was decided to give her another trial at machine work. Mary utterly failed to progress in spite of her apparent best efforts and the special attention given her for the purpose. It was then decided to try her at an operation where she was required to follow certain lines of the garments, trimming off surplus goods with hand shears, an operation that is simple from the point of view of the dexterity and intelligence required. Mary immediately began to make progress and her earnings are averaging with the best. This is a typical case showing the waste of time and effort which it is hoped will be minimized with the assistance of tests. It is the aim to use the tests as an aid in selection, to avoid placing people who are either normal or sub-normal on kinds of work for which they are very likely to prove unfit.

35. The purpose of these tests in the second place is somewhat different, but is of very great importance in an organization such as that of the Clothcraft Shops. It is the practice of this organization to fill positions of clerical or executive nature, and in fact all better positions of any kind, by advancement. By this method a considerable percentage of the organization is moved up during a year's time. At the best a large number of mistakes have been made by advancing individuals to positions beyond their capacity. This, of course, involves eventually a reduction in position or loss of the individual to the organization. In any case the organization has suffered by a position poorly filled and the individual, as well as those responsible for his training, has gone through a period of discouragement which often leaves a permanent effect. It is hoped by means of these tests to minimize these errors.

36. It must be understood that these tests are for inherent intelligence and not for education or character. Education is valuable in industry only so far as it develops the use of intelligence and character. The limitations to the use of such tests must be well borne in mind, and the error of making generalities must be avoided. Tests of this nature cannot determine what a person *can* do, but are valuable only in assisting in determining what he *cannot* do. Both physical and psychological tests can be and have at times been made the instruments of much abuse. They must not be used to eliminate from industry that large proportion of the community which is not normal, physically or mentally, but must be used to assist in saving to the industry by more scientific placement and intelligent individual development every man or woman is capable of productive effort.

37. Proper physical conditions are of vital importance in obtaining results from the men and women of an industrial establishment. There must be good light, good air and sufficient room in which to work without discomfort. Not only must sanitary conditions be maintained at a high standard for reasons of health and comfort, but a high standard of orderliness and neatness in the surroundings is also essential for its moral effect on the worker as reflected in his work.

38. Properly maintained comforts and conveniences for the general need are important as equipment, not only to further the work of the Employment and Service Department in general, but in developing the social spirit which is such a big factor in *esprit de corps*. A great deal should be done along these lines, but in order to meet with success, those things only should be immediately installed which are required to meet a permanent need, and those should be developed gradually which have for their object the general welfare of the entire organization.

39. At the Clothcraft Shops separate locker rooms are maintained for men and women in which each has his individual locker. Bath rooms are also maintained. There are separate dining rooms where every employee has his own seat. Those who wish can obtain simple but wholesome food at cost.

40. Separate recreation grounds are provided where various sports are indulged in at the noon hour and at other times. The recreation grounds form a big factor in the follow-up work of the individual. Noon-day recreations are beginning to be recognized for their beneficial effect on industrial work. Separate reading rooms and recreation rooms are also maintained. These are used extensively in inclement weather. There is dancing on regular days in the women's recreation room, music being furnished by the factory orchestra. The recreation rooms are also used for many other purposes. During the winter, parties are given by the different divisions of the shop. Entertainment is furnished entirely by members of the organization and their families. These parties are attended by all, including members of the firm, and are not only a source of enjoyment, but tend to develop democracy and good spirit. Other activities of recreational and social nature are the dancing classes and various leagues for base ball, quoits, captain ball, etc. These leagues are composed of groups within the organization itself. The Choral Club is especially worthy of mention. Its popularity can be measured by its size which during the past season was in excess of two hundred members. Records of twenty women and ten men at the Clothcraft Shops, picked at random from those who make daily use of the recreation facilities, showed in every case, with but two exceptions, a record of efficiency far above the average.

41. One of the very useful means toward general education and development of the individual is the library. A branch of the Cleveland Public Library is maintained at the office of the Employment and Service Department. Good reading is promoted and in many instances special reading courses are provided. The circulation is not only large, but constantly increasing. Definite information is furnished by the Employment and Service Department concerning special classes in the public schools and other institutions. In fact systematic efforts are made to aid the individual in all possible ways in furthering his general education and development.

42. Another feature of the Employment and Service Department that has justified its existence is the bank, an important use of which has been mentioned above. Interest is paid on all deposits of a dollar or over remaining in the bank for a period of three months or more. Deposits are limited to one hundred dollars. When this amount is reached by a depositor, he is notified and advised to transfer his savings to a regular savings institution. At the present writing over sixty per cent of the members of the organization have deposits in the Penny Bank. Thrift is so well recognized as an essential to steadiness and ambition, that it needs no other justification. To a great number of em-

ployees it is important that a convenient means for saving, especially the smaller amounts, and the opportunity of obtaining a loan when necessary, are at hand. The habit of being in debt must be supplanted by the habit of looking ahead and saving, if a man is to reach or maintain any standard of efficiency. Every one is familiar with the loan shark evil. This evil has been entirely eliminated at the Clothcraft Shops. In the first place every case that came to the attention of the management was fought in courts, so that now loan sharks refuse to lend money to employees. Employees can obtain loans for small amounts by applying to the Employment and Service Department, provided a full statement is made as to financial affairs, and provided further that the money lent be applied directly by the department should it deem this advisable. Occasionally loans of large amounts are granted by application to the management. Campaigns for savings are occasionally instituted and there is always a lively campaign for deposits during the few months preceding September for the purpose of stimulating people to save for vacation week. The entire plant closes down the first week in September for a vacation for all.

43. In touching upon institutional funds, it seems advisable that something be said about the question of industrial insurance. There seems to be no doubt as to the necessity of industrial insurance, but the question as to whether the state or the industry shall eventually maintain its various features has not as yet been decided in the United States. Most states are providing workmen's compensation for accidents incurred during employment. Some of these laws provide further for occupational diseases. No matter whether or not the state will eventually take over other features of industrial insurance, matters of this kind must always be developed first by private enterprise. The question of industrial insurance, therefore, in cases not already covered by state insurance, is a question of management.

44. For various motives, not all of them sound, the question of insurance has been left in most instances to the employees themselves. This has been generally done as a sop to the propaganda of committee or collective administration. A thorough investigation by the management of the Clothcraft Shops, conducted over a number of years, covering nearly every known scheme, has shown practically all of these plans to have resulted in failure or at the best to be uneconomic and unscientific. Such results are bound to follow wherever groups, uninformed and unfitted, try to perform tasks which require scientific investigation and expert administration. A group of employees can no more administer an insurance scheme efficiently than a foundry can produce silk.

45. Insurance is a business in itself, requiring trained experts with an enormous amount of special knowledge for the adequate administration of its various features. The management of an industrial organization can and should place itself in the position of an interested guarantor or sponsor for any insurance scheme and as such should contribute toward it and be responsible for its immediate application. It is not feasible, however, for either the management or the employees of an industrial organization to acquire along with their other duties the special knowledge and expert training necessary for the economic and efficient administration of any insurance scheme. It is the plan of the Clothcraft Shops to put the insurance features, including accidents, sickness, old age and death in the hands of an insurance company that has a department organized for their supervision and administration.

46. It is impossible to touch upon all the features of the useful service performed in the practical, daily administration of the Employment and Service Department. The chief thing is its personal contact and follow-up. In this connection one of the important features is the home visiting. An automobile is maintained to assist in this work. The homes of nearly all new employees are visited at the earliest possible opportunity and practically all absentees are visited by the factory nurse. In cases of illness, assistance and advice rendered have often returned the absentee to his work in a far shorter period than if left to his own devices. Following up delinquency and other matters frequently calls for home contact. Unfortunately it is often found that home influence runs contrary to the factory influence. The home visits as a whole have been found of inestimable value in obtaining individual results and co-operation.

47. While the work of the Employment and Service Department, as shown above, is directly aiming at the development of the individual so that he can fill his position steadily and perform his duties efficiently, it is essential that intelligent co-operation in all departments of the business and all its policies be recognized as an important responsibility of the management. For one thing competent instruction must be provided. This is effected at the Clothcraft Shops by a corps of instructors who are personally responsible for the instruction of all new hands and old hands on new operations until they have shown suitable progress and developed to a satisfactory state of efficiency.

48. Steadiness of employment must be considered not only from the point of view that it is desirable for reasons of profit, but also from the point of view that it is a responsibility of the management to furnish a steady and efficient employee with steady opportunity. From this point of view alone it becomes the duty of the management to standardize the work and working conditions. The standardization of the purchasing and handling of materials to maintain an even flow and an even balance of work is not alone essential, but the balance of employees is also of greatest importance. In most industrial organizations it will be found that there are constantly employed for a given purpose considerably more people than are necessary to turn out the work. In such instances it will also be found that the number of people employed varies to such a degree that there is not only no opportunity given for steady employment, but the distribution of opportunity varies from time to time. Means such as are used under Scientific Management for determining the standard methods and standard times for performing a task should be used to determine the exact number of people to be maintained in every position.

49. Whenever possible the workers should be trained to perform more than one kind of work. In this way they can be used to help out in cases of emergency, some of which occur daily in every large establishment because of absences or other reasons. In the Clothcraft Shops all those willing to learn other work are given opportunity to do so and are paid a retainer while learning. All employees who are capable of helping out on an operation are carefully listed and a definite hourly retainer is paid them whenever they do work on which they are not able to earn as much as on their regular operation. At all times the normal working force should be maintained except only under such conditions as are forced upon the industry and beyond its control. Where there is a temporary lack of orders due to industrial depression, seasonal fluctuations and the like, the number of employees should not be cut down, but the number of hours of employment should be reduced equally throughout the whole organization. At the Clothcraft Shops this policy was strictly adhered to during the

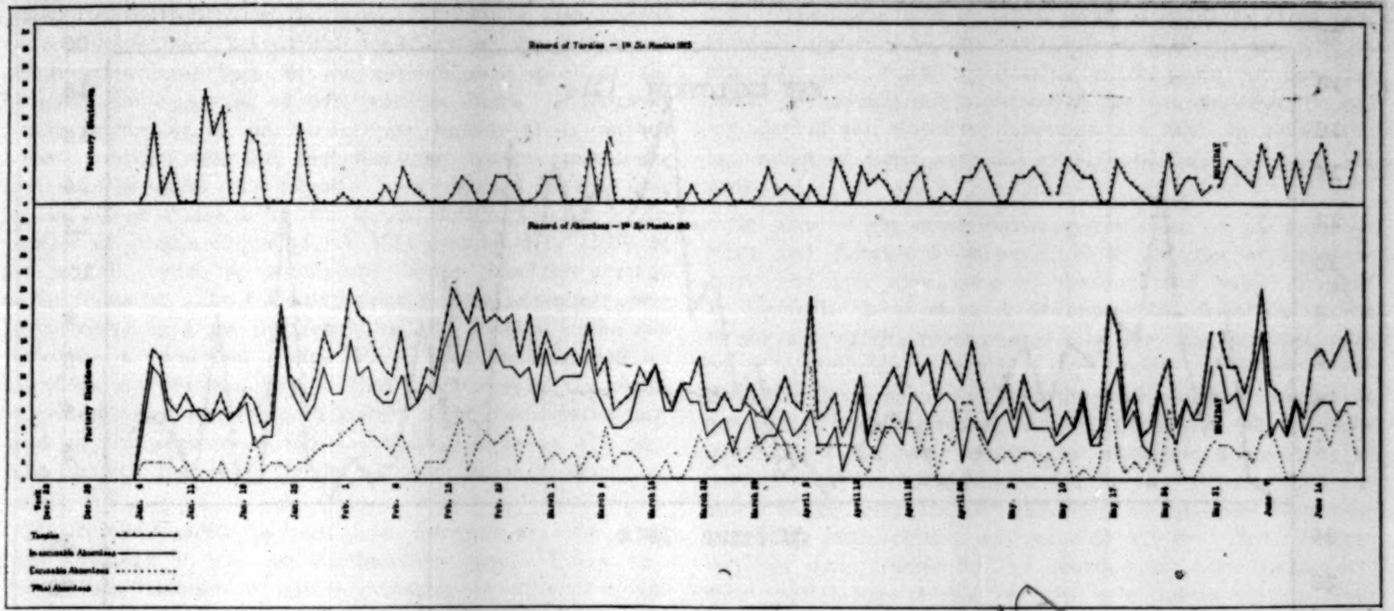


FIGURE 4.
RECORD OF ABSENTEES AND TARDIES.

recent industrial depression, which reduced its normal working hours by approximately fifteen per cent for a period of six months. While the percentage of quitters for this period was noticeably increased, nevertheless, this increase was diminutive as compared to the number it would have been necessary to lay off had another policy been followed. We believe, moreover, the duty of providing steady employment under all possible conditions is a moral responsibility to the community at large.

50. The seasonal character of some industries is a well recognized part of this problem. There is no doubt that in order to overcome this obstacle a great deal of public education is necessary. The fact remains, however, that the problem can for the greater part be solved by the industry itself. For this purpose purchases must be standardized and the purchasing policy itself so developed that a good proportion of orders can be anticipated.

51. In this connection one of the most important things is the sales policy. Many businesses, even though having a highly developed manufacturing organization, have not a sales policy or sales organization worthy of the name. It is only in exceptional instances that the sales policy and the manufacturing policy are properly co-related. Ordinarily the sales department is administered with entire disregard of its most important function, viz., to market a product that will permanently be of most profit to the entire organization. The Joseph & Feiss Company, in order to meet the problem of furnishing steady employment, have for some time past conducted an advertising campaign concentrating on certain staple numbers. The volume of sales that has resulted has been sufficient under normal conditions to provide steady employment when other establishments in the same industry have been shut down. As to this phase of the problem, however, the surface has, as yet, only been scratched. The men who hold the purse strings must sooner or later learn that the correct point of view, both morally and for the purpose of permanent return not only to themselves, but to all the organization, involves the realization that the factory does not exist for the purpose of turning out for a temporary profit whatever it is easiest to sell, but that the sales force is part of the manufacturing organization to market whatever it can most steadily and, therefore, most profitably produce.

52. Only a thorough realization of all the actual problems and earnest efforts towards their solution will bring results. While the greater part of these results shows in the spirit of the organization and in the spirit of its personal relationships and can only be judged by actual investigation, an important result is a decided steadying of the working force, which can be judged by accurate data. This is readily discernible in the accompanying records and charts in use at the Clothcraft Shops.

53. From the record of absentees and tardies (figure 4) it will be seen that during the first six months of 1915 the average number of tardies was only two and one-half persons per day. This is equal to 1-3 of 1% of the working force. For purposes of accurate follow-up absences are classified as excusable and inexcusable. Figure 4 shows that the excusable absences averaged a little over seven persons per day or .9 of 1% of the working force. The inexcusable absences averaged only a little less than four per day or .5 of 1%. The total absentees per day averaged eleven or only 1.4%.

54. In regard to quitters a little more explanation is necessary. Very few people realize the tremendous cost to industry from this cause. Various estimates of this cost have been made. These estimates vary from fifty to two hundred dollars per person, depending on the nature of the work and character of employee obtainable and the percentage of old employees who are rehired. Taking even the lowest possible estimate, it would seem that any reasonable outlay of both money and effort for the purpose of reducing this industrial and social waste would be justifiable. At the Clothcraft Shops in recognition of the tremendous loss from this source and the consequent value of notice in case of a contemplated severance from the organization, such notice is paid for at the rate of an amount equal to a day's pay for every week's notice, but not in any case to exceed an amount greater than four days' pay.

55. For the purpose of compiling comparable data as regards "labor turnover," standard practices should be established. The average standing payroll for any given period should be the basis as this gives the average number of positions to be filled. In case there is a general reduction in the number of positions during the period, the percentage of new employees to the average standing payroll

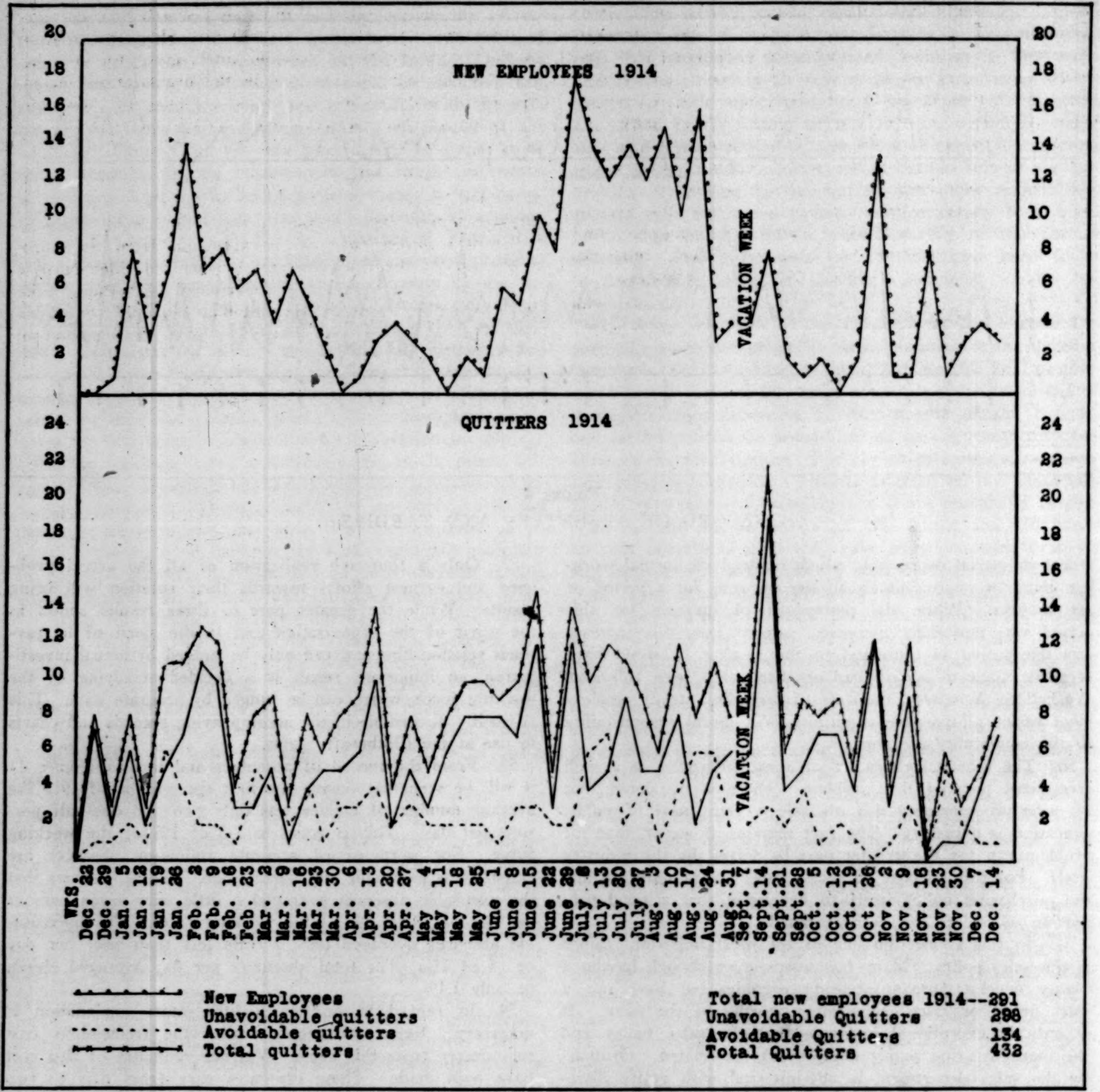


FIGURE 5.

RECORD OF NEW EMPLOYEES AND QUITTERS.

should be taken. In case there is an increase in the organization, the percentage of quitters to the average standing payroll should be taken. In the first case that amount by which the number of quitters exceeds the number of new employees will account for the reduction. In the second place, the amount by which the new employees exceed the number of quitters will account for the increase.

56. For purposes of intelligent comparison, quitters should be classified as "unavoidable" and "avoidable." "Unavoidable" should include discharges, death, sickness, accident, marriage, retirement, etc. "Avoidable" should include cases of dissatisfaction and all cases that cannot unquestionably be classified as unavoidable. In every organization there are bound to be some unavoidable quitters. The records of the avoidable quitters, therefore is the important thing. The record of new employees and quitters for 1914, as shown in Figure 5, demonstrates, among other things, that the avoidable quitters had been reduced to a figure less than one-half as large as that of the unavoidable quitters and were only 6.4% of the working force.

57. Nothing shows more clearly the progress which has been made in this respect at the Clothcraft Shops than the record of "labor turnover" for the five years from 1910 to 1914 inclusive as shown in Table 1.

TABLE 1.

LABOR TURNOVER 1910-1914

Year	*Stand. Payroll*	*New Hands*	*Per Cent.*
1910 - - - - - -	1044	1570	150.3
1911 - - - - - -	951	807	84.8
1912 - - - - - -	887	663	74.7
1913 - - - - - -	854	569	66.6
1914 - - - - - -	865	290	33.5

These records tell their own story. It may be also worthy of note that over 1-3 of the members of the Clothcraft organization have been in the continuous employ of the company for a period of five years or more. It is practically impossible to obtain accurate figures as to normal labor turnover. In the few instances where figures are available, progress has already been made. In the case of one large concern in the men's clothing industry, the number of people employed for 1914 amounted to 115% of the payroll, which is undoubtedly better than the average in the industry. The following relating to a somewhat similar industry is from the report of the Federal Industrial Relations Commission (page 166): "An investigation of the cloak and suit industry in New York showed the maximum number of employees in sixteen occupations during any week of the year to be 1952. Actually, however, the payrolls showed that 4000 people were employed in these occupations."

58. It can readily be seen how intricate are the problems involved in the art of handling men. Every step toward the solution of these problems is a step in the direction of democracy. Efficiency as a whole is accomplished by efficiency of the individual and efficiency of the individual is accomplished only by methods involving personal contact.

59. In a recent noteworthy article on "The Progress of the Social Conscience"[1] by William Jewett Tucker, President Emeritus of Dartmouth College, the following statement is made: "Public opinion as the governing force in modern democracy is the objective of social conscience." It is the awakening of the social conscience that is making the man at the head of an organization realize the necessity of free expression of public opinion. The development of this expression through the natural channels of intimate contact will lead in the most normal and direct way to the democratization of industry.

60. The existence of democracy in an organization is not dependent upon any particular method or any particular form of expression.

Professor Thomas N. Carver of Harvard University in his book entitled "Essays in Social Justice"[2] says:

> "This leads us to a consideration of a statement which is so frequently set forth in the ephemeral literature of the day, by popular writers and speakers to the effect that as the nineteenth century achieved political democracy, it remains for the twentieth century to achieve industrial democracy. They who have this point of view have apparently never gotten beyond the idea that balloting and democracy are synonymous. We have heard a great deal of preaching in our day regarding idolatry of wealth, of the worship of the almighty dollar. We have heard apparently little of the worship of the almighty ballot, and yet of the two forms of idolatry the latter is not only more vicious, but more silly. Two things and two things only are essential to real democracy. The first is an open road to talent, that is to say that every man shall have an opportunity to rise to positions of power and responsibility in proportion to his ability, regardless of birth, privilege, caste or other social barriers. The son of the peasant may become the ruler in government or the employer in business by sheer force of his own merit, if he happens to possess merit. The second essential of pure democracy is that they who are in positions of power and responsibility shall be made sensitive to the needs, the desires, and the interests of those over whom they exercise power and responsibility."

61. The open road to talent is an essential to every successful organization. At the Clothcraft Shops the road is not only open, but every possible aid is given for advancement. Practically all positions in the organization, including clerical and executive positions, are filled by those who by reason of sheer personal merit have come up from the ranks.

62. One of the most important functions of the Employment and Service Department is to develop organization spirit and free expression of personal and public opinion. It forms a direct channel of expression from its source to the ear of the management. In fact the chief purpose of a scientifically organized department is nothing more than the development of that intimate personal contact so necessary to management. At the Clothcraft Shops about one-fifth of the total number of employees come daily in contact with the Employment and Service Department. All cases where direct contact with the management would be beneficial are immediately referred to it. This requires constant daily contact of the management with the department, and brings it into intimate relationship with a great many more cases than would be possible in the average organization of much smaller size. Wherever the management assumes the policy of the closed door, this department may well be shut down.

63. Results cannot be accomplished in the spirit of charity, but must emanate entirely from a sense of justice. It must be understood that work along the lines described above can never take the place of wages. Such work must have as a reason for its existence not only increased efficiency, but the increased reward to which increased efficiency is entitled. Figure 6 is a chart showing the progress of the Clothcraft Shops in respect to wages and efficiency from June, 1910, to January, 1915. This shows during this period an increase in production of 42%; an increase in the average individual hourly wages of 45%, weekly wages 37%; and a decrease in total manufacturing cost of about 10%. During this period the weekly working schedule was reduced from fifty-four to forty-eight hours.

64. It is our belief that results, such as these, are obtainable only when Scientific Management is scientifically applied. Scientific Management will live if for no other reason than that it has faced the problem squarely and recognizes that the science of management is the science of handling men.

65. That Scientific Management is a solution of the industrial problem involving all the ethics of human relationship was recognized by no one so well as by the Father of Scientific Management himself. For proof we need only remember the four principles of Scientific Management[3] as propounded by Mr. Taylor, and his well known words that the "Product of a factory is not materials, but men." The most hopeful sign of the times is the awakening public conscience in regard to the elements of success. The measure of success is no longer how much you make, but how you make it.

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[1] Appearing in the 1915 September issue of the Atlantic Monthly.

[2] Harvard University Press, Cambridge, Mass. 1915.

[3]
1. The development of a true science.
2. The scientific selection of the workman.
3. His scientific education and development.
4. Intimate friendly co-operation between the management and the men.

("The Principles of Scientific Management")
by Frederick Winslow Taylor,
Harper & Bros. New York.

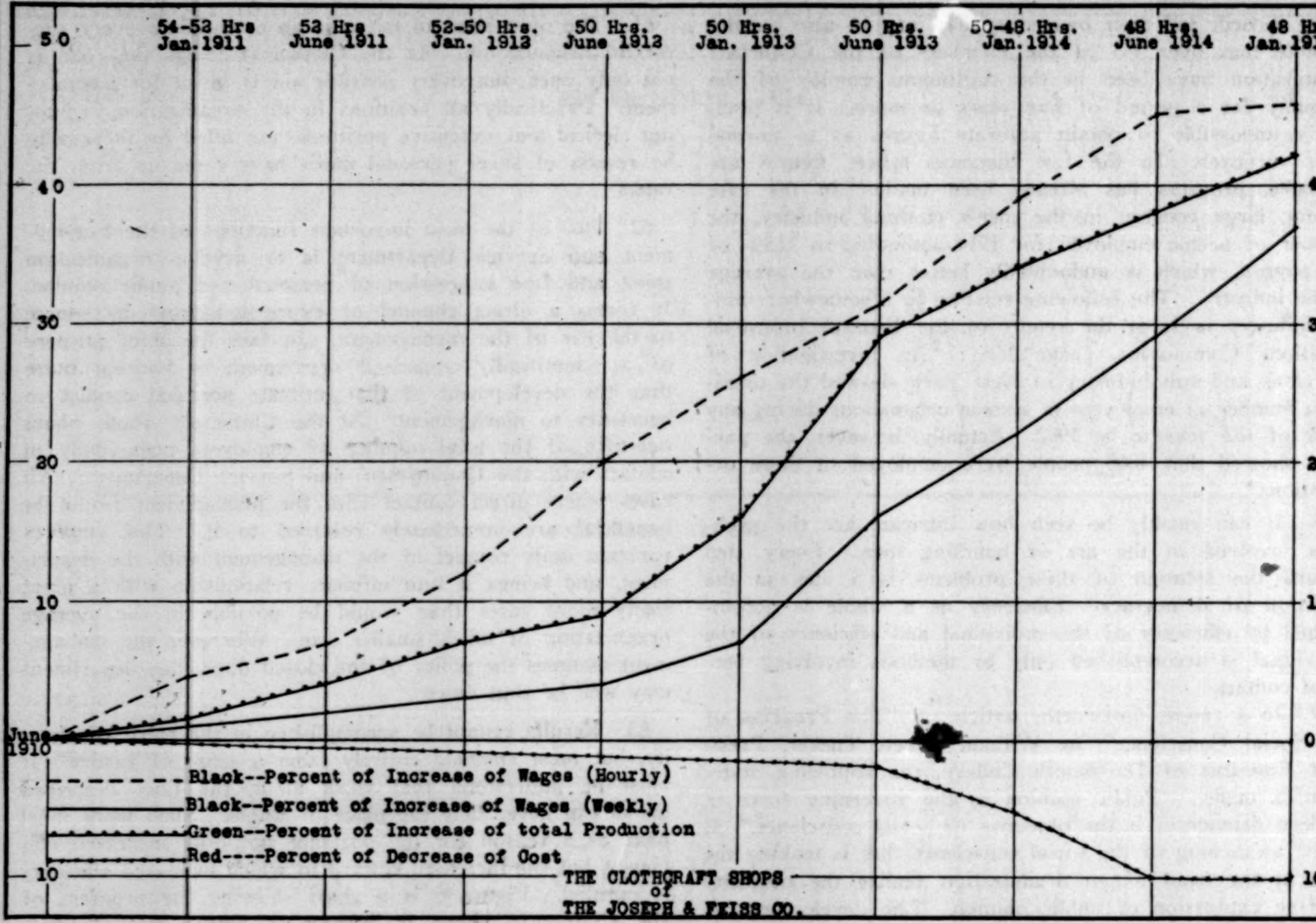

FIGURE 6.

RECORD OF PROGRESS.

DISCUSSION.

MR. HENRY P. KENDALL[1]: A few years ago I read in one of the technical journals of a very model plant that had been built in Rochester, and I discovered that it was headed by a friend of mine, and I made a trip out there to see Mr. Noyes and see that factory. I told him that I was looking for the best things there were in factory ideals. He said, "We have got a good factory here, but you want to go over and see Feiss, and here is a letter to him." Being in the habit of doing about what Mr. Noyes says, I made a bee-line for Cleveland and I spent one of the most interesting days I ever spent in my life in Mr. Feiss' factory. That was a few years ago. He tells me that I am hopelessly behind the times, things have improved there so much. I really do not think there is much need of my going into the matter, because the pictures have shown graphically the conditions which really do not require any enlargement.

Mr. Feiss has stated that many people feel that they have good management when they have installed the most modern machinery. That is but a small part. Mr. Taylor showed that with the best machinery and with the coöperation of the worker, greater results could be obtained than ever before. Mr. Taylor's life was too short to set up even sufficient object lessons of this kind, or to show the extent to which personal relations could be developed later. Mr. Feiss believes in modern machinery and efficient shop management, and has the opportunity of developing the personal relationship to a great extent. Mr. Feiss is starting at that point and showing that the real efficiency only comes when you have healthy, happy coöperative workers working under the best kind of atmosphere.

When I visited the Clothcraft Shop, I raised the question, which I hope Mr. Feiss will answer, as to how many of his employees are foreign born or what percentage are American born of foreign parentage. But I should like to ask a question which I would otherwise put to him privately: whether there is a sufficiently large proportion of his people foreign born or of foreign parentage which would make his methods, which have been so successful, perhaps less applicable to an industrial crowd which had a larger percentage of the American born or of American parentage?

I have thought that in the establishment of the Plimpton Press there was a quiet spirit of well ordered industry, no great speed or haste, but it was such an improvement over what I saw in competitive shops that I thought our workers worked at a pretty fair rate of speed. It took my breath away when I went through the Clothcraft Shops and saw those girls running the sewing machines and doing other things at a speed that almost made you dizzy to watch their fingers. Then, far from being fatigued, I saw them in their dancing room, saw the men playing in-door baseball, and noticed that there was lots of vitality left. I was so impressed with in-door baseball as a game for girls in the factory that when I came back I at once presented an in-door baseball outfit with a set of rules for the girls in the factory which I am interested in, in the hope that they would take it up and develop it. The next time I went there it was the men who were using that outfit and the girls had never taken advantage of their opportunity.

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[1] Manager, Plimpton Press, Norwood, Mass.

I want to ask Mr. Feiss another question which he touched on, when he said that in September he shut down for a week and gave every one a vacation. The vacation problem is such a vexing one in business, so hard to give the needed vacations to workers as well as office people, that I should like to know from a purely business point of view what effect a uniform vacation at a certain time has on the workers and what it has on the business. It seems to me that it is a custom that we ought to use if we can work around to it.

I want to ask Mr. Feiss another question. He has emphasized this afternoon more than I had ever observed or seen emphasized, the general application of the home visits of his service or medical side. Are such visits as general among the American born workers, as among the foreign born or foreign parentage workers? Is that a practice which he would develop generally in industrial establishments?

I should like to have him enlarge, if he will, for a moment on the savings bureau. Two years ago, I think it was, we started a savings bureau at the Plimpton Press, to make it easy for the five cent, ten cent and twenty-five cent pieces to be saved, to help people to get out of debt. During the first year $15,000 was deposited by the employees of the Plimpton Press, an astonishing amount, showing the need of that sort of thing. That was done partly to do away with the loan evil, not the loan shark evil, but the evil which we discovered was existent in our factory. In almost every department some thrifty man was lending money to other men and taking their savings, charging them a dollar a week, I think, interest, when they wanted money. It was a vicious system, one that we did not know anything about. The savings bureau helped to combat that very thing. I should like to know to what extent the savings bureau in his company has been patronized and what it means.

Very little more have I to say in criticism or suggestion or questions. I do feel, however, that Mr. Feiss is distinctly leading in this country so far as any establishment I have personally visited is concerned in this kind of personal relationship, personal service, personal education of the employees in good citizenship. And after all, isn't that the spirit of the game? What better is there? What better kind of work is there than to work, not with the submerged tenth, who have little or no hope of getting up, but to work with people who are earning their own living, help them in their thrift, help them in better citizenship, in better standards of life? After all, regardless of profits in business, is there anything in it more worth while than that? Personally I do not think there is.

Mr. Henry T. Noyes[1]: My chief delight in Mr. Feiss' paper is in the subject that he has dealt with: "Personal Relationship as a Basis of Scientific Management". This is a very emphatic way of saying that the science of management must recognize and deal with the problem of personal relationship. We have not been listening to a discussion of the best methods for cutting metals; we have not been listening to a discussion of task and bonus, planning and routing or functional management, but to another one of the real problems of industry. The very subject of the paper emphasizes the real greatness of the ideas and doctrines of Taylor.

Taylor's greatness should not be associated with the idea that he devised or originated or discovered some particular system or device for accomplishing that or this purpose. He should not be remembered at all primarily for his researches into the problems of cutting metals or for his suggestions in connection with shop management. He was, however, the bearer of a great message. He did preach a big doctrine. His message was addressed first to industry, and it was this: That industry must henceforth deal with each and every one of its problems in the light of real, complete knowledge based on evidence and proof. That guess-work and opinion must be eliminated from all problems and that truth and knowledge must rule. Thus I dislike to hear the words "The Taylor System". He was preaching a big doctrine and simply illustrated it by work on particular problems.

I take pleasure tonight also in bearing testimony to what Mr. Feiss has been and is accomplishing. I and my associates have visited many plants throughout the country. We make a practice of visiting plants regularly. I have yet to visit one plant in this country or elsewhere where the spirit of coöperation, where *esprit de corps* exists as it does in this Feiss plant. It is a spirit that you are bound to feel. If you go there you are bound to see it in evidence in the worktime and in the playtime and even in the noon hour of rest. That Mr. Feiss has solved in a way the personal relationship in his problem is true, in that he has coöperation beyond that of any other plant of which I have knowledge.

However, I want to emphasize, if I may, two or three points. First, some of the facts that Mr. Feiss has given us are not proof of the value of personal relationship alone. Mr. Feiss has done other things than to deal with the problem of personal relationship in scientific management. He has referred to his time study men, but he has many other activities. And by the scientific treatment of all of his problems he has achieved a tremendous result, evidenced by the figures he has presented. He has reduced the number of employees from ten hundred and forty-four to eight hundred and sixty-five, cut down the working hours from fifty-four to forty-eight, and at the same time he was doing these things he has increased his production forty-two per cent and has increased the weekly wages to employees thirty-seven per cent. But I do not think that he has proved to us that that was all due to personal relationship. It has been due rather to his wide general practice of the science of management. He has, however, accomplished many many things that I think can be traced to personal relationship. The fact that his hiring percentage has been reduced from one hundred and fifty per cent down to thirty-three and one-fifth per cent, is to me an astonishing fact. I do not believe that there is any industry or activity that can compare with him on that subject. I have made efforts to study the figures of other plants, and from the very careful study that we have given to it, his figures are astonishing. This I believe has been accomplished through his personal relationship work.

Mr. Feiss has shown to us that the study of personal relations is of value to all manufacturers. Of course we should face all our problems, and in this he has shown us that results can be accomplished. Great good can be accomplished through the study of that problem. However, in justice to Mr. Feiss and to other manufacturers this is true: Mr. Feiss' detail methods could not probably be applied to all plants. It would not be scientific to say that they could. Mr. Taylor would aver that you would have to have for different conditions, different solutions. You cannot get one method, one system, one catch-all, one simple way for doing everything. Mr. Feiss' conditions are quite different in some particulars from those that prevail in the industry in which I am connected. In my particular work, in my opinion, we could not do certain things that he does. That may be due for one reason perhaps to the fact that Mr. Feiss and I are different kinds of people and we personally handle things differently. Personality should be taken into consideration. Mr. Feiss can accomplish things for another reason that does not apply to all plants.

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[1] President, German-American Button Co., Rochester, N. Y.

To illustrate this, and to show the difference between his plant and others: He has the rarest opportunity for promotion that I know of. Practically all of the people in his shop deal with the same kind of work. The girl who goes there for the first time, to baste, begins to handle threads and cloth. The sub-divided work of making a garment, bringing cloths together and sewing, needs a great many separate steps and he is able to offer promotion to nearly all of the people that start down and go from one step through to another, and through experience in one step they are fitted for the next. He has a rare chance to offer promotion to his people which does not exist in all plants. Mr. Feiss has a chance for promoting people, which means a great deal. I think it governs some of the *esprit de corps;* he holds people because that fact is true. Conditions must differ in industries today. His conditions will differ five years hence, and they will differ all about us and over the entire United States. Therefore, we must not think of the solution of any one problem as really a permanent solution. We must take into account the facts and the conditions; and those facts and conditions change.

There is one interesting thing that I want to dwell on, and in which I heartily agree with Mr. Feiss. Mr. Feiss emphasizes the fact that the workman wants justice and opportunity. I think that is very true. We have tried to carry these out in our business. He has another thing also, which I admire, which he did not mention, and which is this: All of his employees observe the same working hours. There is no difference in his plant between office and factory. Personal privilege has all been abolished. Mr. Feiss is probably the first one at work at his place; he is there all through the working hours; and no doubt he is the last one to leave. They are all on an equality in his plant. He has brought that about. Why do a lot of you give the office people privileges which the factory employees do not enjoy? Why do they have shorter working hours? What is the real justice back of it? I fail to see it. I believe that is a problem which a good many of us will face to advantage in the next five or ten years.

Mr. Feiss makes one claim with which I am not prepared to agree entirely, namely, he says that personal relationship is the basis of scientific management. If it is true, that the big problem of the world today is the problem of distribution; that the big problem of labor and capital is—as to how things shall be divided between the two, then I am willing to agree that personal relations have a chief importance in connection with all problems that confront us in industry. I would rather say, however, that personal relationship is one of the most vital problems of industry, rather than to put it quite as broadly as Mr. Feiss does. Mr. Taylor did recognize this fact, that his doctrine should be a means of bringing labor and capital together. And why? This is my belief: he was trying to preach the rule that everything should be based on truth and knowledge, knowledge known to the employer; known to the employees, and on the fact that our minds are constituted alike; that if you put in the same things, the same knowledge and truth, the answer seems to be always the same. Thus if we can deal with the problems that confront us in industry, and get the facts and knowledge before us all, there should be a solution to them.

It seems to me that the paper of Mr. Feiss is a real contribution, that it should be viewed, however, in the light of the slight modifications I have emphasized, and that under different conditions, different methods would apply naturally and obviously. This I hold is real good Taylor doctrine.

A Taylor system or one Taylor method or Feiss method would of necessity die, but the real Taylor doctrine will always live. A vital force must be a living force, and a living force is one that grows and changes. Thus in the years to come the particular methods of Taylor, the particular devices, may change with conditions that arise which are new. There may be new discoveries that will upset his method of cutting metals, but the real truth that he preached, that we must face in industry every problem in the light of real true knowledge, is one that will continue.

Mr. Joseph L. Cohen[1]: It is one of the main features of Scientific Management that it trains the workman. This training aims to create an efficient workman who will work into the organization of the business. A workman may therefore be regarded as valuable to the organization as a whole when he not only knows his own particular work, but when, first, he has learned the particular routine of the firm and can go about his work efficiently; secondly, when he has developed a fine attitude towards fellow workers and thus helps the smooth running of the firm; thirdly, when he has a satisfied feeling that the employer and management are fair to their workmen and that none are discriminated against; and, lastly, when his knowledge of the firm and his interest in the work is so great that he might be able to suggest some valuable change in organization or even invent some new process.

The chief characteristic of these qualifications is that they are of value only to the particular firm where they have been developed. Obviously, therefore, it is wasteful to permit any forces in industry to come into play which result in divorcing men from the firms to whom they are of special value. It is because of the special value of having men of such a calibre that money is spent on their training and that expenditure is entailed on what used to be termed "welfare work."

"Without this coöperation", says Mr. Henry P. Kendall, "this interlocking of interests, scientific management is but a word." Mr. Feiss has developed the view of "personal relationship" as the very basis of scientific management. It was clearly the opinion of Frederick Winslow Taylor that the greatest blessing that would result from the adoption of the principles of Scientific Management is that it would make the workman a "happier and better man". It would achieve this result by educating and training him "to his highest state of efficiency", to the capability of doing "a higher class of work", to a friendly attitude toward his whole working conditions and especially to his employer.

From this view the workman is both an individual and the member of a closely knit social organization known as the factory. As a workman he has certain value and receives certain wages but there are other qualities more intangible and more elusive which are also of value to the firm.

There is one great disturbing factor which causes the work of months to be wasted and destroys not only the workman's special value as a coöperating unit, but even tends to lessen his very efficiency as a workman. Periodically, yet frequently, he is liable to be unemployed because of lack of work and on many occasions in his life he is nearly certain to be reduced to poverty because of it. How can the workman really have that feeling of loyalty to the firm when he sees his mate or himself dismissed and perhaps reduced to penury when he is not guilty of any particular offence? Until therefore, unemployment is solved, true coöperation between employer and employee must, at best, remain uncertain of attainment.

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[1] Columbia University, New York City.

Mr. C. Bertrand Thompson, in an article on "The Relation of Scientific Management to the Wage Problem" wrote: "In spite of the prevalence of the talk about sanitation, safety, welfare, *esprit de corps,* etc., the most vital point of contact between managers and the men is the pay envelope. There is no solution of the problem of apparently conflicting interests between employers and employed that does not involve fundamentally the question of wages." Now wages are a resultant of two multiples, the number of weeks in each year the laborer is at work and the average wage per week. A man earning a *regular* $16 a week is better off than another earning $27 a week for thirty weeks in the year. This elementary fact has yet to be clearly grasped, though it is now generally conceded that a very large percentage of workmen are subject to unemployment every year. Scientific management has hitherto paid most attention to the size of the workman's weekly wage rather than to its continuity throughout the year.

In order to remove this stigma and, much more important, in order to remove the cause of it, scientific managers are preparing to face it as the very next problem which challenges their attention. Already something has been done in this direction if for no other reason than because scientific management becomes impossible, as well as costly, with a shifting, unstable, casual personnel. A number of factories have reduced their labor turn-over from over a hundred percent to less than forty percent. This is representative only of the best firms and they are still exceptional. Further progress may be expected in two directions in the near future. Other firms will learn to lessen their labor turnover percentage and the more progressive ones will still further decrease their already lowered percentage. Furthermore it may be anticipated that short time will come to be practiced more and more as the advantages of keeping a habitual staff are more appreciated. Perhaps, however, the most remarkable and least expected achievement recently accomplished by a progressive firm is the actual training of the workman to some *subsidiary* work in which he might engage whilst work in his primary occupation is slack.

But there will still remain a residuary percentage of unemployment. To meet this residuary percentage the machinery of insurance could be resorted to. Even if unemployment cannot be wholly abolished, much of the suffering resulting from it can be if some little care in organization be exercised. Doubtless many managers will fear the anticipated heavy costs of carrying such a proposal into effect. But these fears are groundless. *An average progressive firm will be able to help materially those whom it is forced to dismiss during slack periods by an increase in cost amounting to one-half of one percent of the payroll.*

The different types of organizations in which this method of meeting unemployment has been successfully carried out and the elasticity of the schemes show that this kind of establishment fund is likely to have a great future. The comparatively small benefit is found to be sufficient to prevent the unemployed workman from becoming a public burden. It helps him to retain his self respect and efficiency. Unemployment instead of resulting in the workman's complete breakdown as a result of which he is likely to be dragged down to a lower level in the social scale, becomes an uncomfortable transitional period when he can take a forced vacation. If scientific managers were really prepared to grapple with this problem it is safe to assume that they would succeed in removing one of the greatest sources of waste which interferes with their progress.

The problem of unemployment can be approached and, indeed, should be approached through both avenues, through the direct action of employers in their own establishments and through state activity. In both directions the experience which they have accumulated, the methods which they employ and their enthusiasm for the elimination of waste offer scientific managers a unique opportunity for public service..

Mr. Henry L. Gantt[1]: First, I want to indorse some things that Mr. Noyes said. Mr. Noyes made the statement that Mr. Taylor's work was larger than any system, or any scheme, or any determination of laws of cutting metals. His work was to base everything on knowledge and facts. I will take the liberty of reading what I said on that subject at the opening of my address last night:

"His reputation does not depend upon the fact that he designed and built the most successful big steam hammer in the world, or that he developed a method of treating tool steel that trebled its cutting power, or that he determined the laws of cutting metals, or even that he was the father of scientific management. These were incidents in his career, and only the logical results of his methods. At an early date he realized how much of the world's work was based on precedent or opinion and undertook to base all his actions on knowledge and fact."

That is my estimation of the work that Mr. Taylor did. That is far larger than any one of the incidents that I have mentioned and has a farther reaching result. Mr. Noyes took issue somewhat with Mr. Feiss on the question of personal relationship as a basis of scientific management. Management means primarily management of men. Management of materials and forces is comparatively easy. We are learning the laws which control materials and forces, and the best engineers are learning to manage them with comparative ease. The real problem then is the management of men. I might enlarge on that subject a little. Last winter I was called upon to discuss a paper of Professor Jones of the University of Michigan on "Business Administration". Mr. Jones took the ground that all administration was administration of human affairs, and that the way to study administration was to see what history had to tell us about the administration of human affairs. He found the most extensive literature on the subject to be concerned with war; and that the great leaders of men had been the great generals. The men who had followed these great generals had been influenced by them and directed by them because of the personality and the ability of those men. He found very close relationship between leadership in war and leadership in industry, and drew the conclusion that the same laws applied to both.

If this is the case, it is well for us to see what the greatest warrior of modern times has to say about the importance of leadership in war, and thus arrive at some appreciation of the importance of leadership in industry. Napoleon said:

> "In war men are nothing; it is the man who is everything. The general is the head, the whole of any army. It was not the Roman army that conquered Gaul, but Cæsar; it was not the Carthaginian army that made Rome tremble in her gates, but Hannibal; it was not the Macedonian army that reached the Indus, but Alexander; it was not the French army that carried the war to the Weser and the Inn, but Turenne; it was not the Prussian army which, for seven years, defended Prussia against the three greatest powers of Europe, but Frederick the Great."

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[1] Consulting Engineer, New York City.

The historian in making this quotation stated that Napoleon reiterated a truth confirmed by the experiences of successive ages, *that a wise direction is of more avail than overwhelming numbers, sound strategy than the most perfect armament.* Similarly in industry,—*a wise policy is of more avail than a large plant, good management than perfect equipment.*

The historian goes on to say:

> "Even a professional army of long standing and old traditions is what its commander makes it; its character sooner or later becomes the reflex of his own; from him the officers take their tone; his energy or his inactivity, his firmness or vacillation, are rapidly communicated even to the lower ranks; and so far-reaching is the influence of the leader, that those who record his campaigns concern themselves but little, as a rule, with the men who followed him. The history of famous armies is the history of great generals, for no army has ever achieved great things unless it has been well commanded. If the general be second-rate, the army also will be second-rate."

These facts in military history have their exact counterpart in industrialism, and the real problem of today is how to select and train, or rather how to train and select our industrial leaders.

If we have proper industrial leaders we shall find that the men are following in their footsteps. Our factories always reflect the leadership. Mr. Feiss' factory reflects Mr. Feiss. Mr. Noyes' factory reflects Mr. Noyes. Mr. Kendall's factory reflects Mr. Kendall. It is the leader that counts, and this fact bears out the truth of Mr. Feiss' argument in saying that personal relationship is the basis of scientific management.

I am not only in complete accord with all that Mr. Feiss has said, but feel that I should like to add a little emphasis to the points he makes. Mr. Feiss' work seems to have been primarily devoted to the production of harmony. He brings out the fact that it is of more importance to have workers in harmony with the methods and aims of an organization than to have them particularly skillful in certain operations. In other words, team work is the first essential.

We are continually having the truth of this thing forced upon us. Perhaps the reason for this fact is that it is far easier to teach a man to do things skillfully than it is to teach him to work in harmony with others. The value of medical inspection of people to be employed and the advantages of periodical subsequent inspections have been so clearly demonstrated, that is is only a question of time before all progressive establishments will have both.

He speaks of psychological tests for the selection of workmen, about which considerable has been written. So far the results of this work, as far as I have been able to observe, have been meager, and much of the writing seems to indicate what people hope to accomplish. If these tests have for their object the determination of the general class of work for which a worker is fitted, they seem to give promise of great usefulness. Having found an operative naturally fitted for a job, however, we still have the problem of training him to do it regularly and in harmony with his co-workers. What we most need is some kind of a test which will tell us whether a man will accept training or not, and be loyal to the results. We frequently find that a man not naturally qualified for a job becomes, because of his susceptibility to training, a very much more desirable worker than the man who was naturally adapted to it, but who insisted upon doing it his own way.

Mr. Feiss rightly says these tests should not be used to eliminate people from industry to which they may possibly be trained, but to save such for the industry. He believes it to be the duty of an employer to the community to provide steady employment as far as it is possible. This subject has not been given the attention that it deserves, and difficulties of doing it have been accentuated by improper cost finding methods. With a proper consideration of the expense of idle plant and equipment, I think some of the difficulties will vanish.

Many people are shocked at seeing workmen standing idle for two or three hours a day. The manager of a plant is often very much excited if he sees men idle even for a few minutes; but he walks unconcernedly up and down the shop where there are machines idle day after day and costing him ten, fifteen, twenty, twenty-five or fifty dollars a day on account of their idleness. Those machines cost money; we have the interest on those machines to pay; we have the depreciation on the machinery; we have the rent of the building which they occupy; and all that goes on whether the machine is operated or not. Our cost-finding methods in the past have been such as to smear this expense over the cost of product which we made on the other machinery which was running.

We must separate the expense of idle machinery from the expense of that which is running. It is not fair to charge to the machine which is running the expense of the machine which is idle. Many people are beginning to-day to put down in exact figures the amount of expense incurred on account of idle machinery. To show that expense day by day is the next step to be taken. When that is done and people realize that the expense of the idle machinery is as great as it is, they will find some way of having the machinery run, and the workmen will keep their jobs.

For instance, suppose we had a plant which cost us ten thousand dollars a month if it were idle. Would it not be far better for us to run that plant and lose ten thousand that month than have it idle? If we ran the plant and lost ten thousand dollars, we should have our organization ready to take on any work at the beginning of the next month. If we shut the plant down and let the people all go, our organization is broken up and we are in a bad fix. Suppose that two concerns were competing under these conditions, and one of them shut its plant down and lost ten thousand dollars, and the other did not shut the plant down and lost ten thousand dollars. Business begins to come in; who would be ready for it? Mr. Carnegie recognized that fact; and in the early nineties, when there was a strong competition between the steel companies, Mr. Carnegie ran his plants while the Illinois Steel Company shut theirs down. The result was that Mr. Carnegie got control of the steel industry.

I am not strongly in favor of State legislation to cure these problems. I do not object to certain socialistic ideas, but I would like to see these things studied from their proper standpoint. Let us get all of the facts and see if we cannot solve them in a natural way without enacting laws. We know what most of the laws are enacted for; they are enacted to counteract the effect of some previous law which was bad, and the fewer laws we enact the fewer laws we shall have to repeal. If we can solve the problem without laws, let us to it.

The remarkable result that Mr. Feiss has shown in the increased permanence of employees is noted wherever methods even approximating those that he uses are employed.

Finally we come to the idea of democracy in industry. I emphasized the importance of this in a paper before the American Economic Association last winter. Nobody really believes that every man is mentally or physically equal to every other man, but he does believe that they are entitled to equal opportunities. If we base all our actions on knowledge and facts and do away with special privilege, we shall go a long way in the solution of our ideals of the democratic industrial state, and do much to solve our present industrial problems. True democracy really means *equality of opportunity, and authority based on knowledge, not on birth or special privilege.* If proper training and equal opportunity can be secured, we shall have a firm foundation upon which to rest the solution of our industrial problems.

Mr. William Kent[1]: I was at a meeting on the subject some years ago in Washington, and the question was asked how many men Mr. Taylor was able to get rid of in shoveling dirt and carrying rails and other things. A man representing a labor union said, "What I am chiefly thinking of is, what became of those men who were discharged." So here, he would say, what I am chiefly thinking of is what became of the one hundred and seventy-nine men that Mr. Feiss got rid of. There are eight hundred and some odd men that do the work as compared with ten hundred and forty-four that did the work before. What became of the poor fellows that had to leave?

I do not sympathize with that idea. I said in a paper some time ago that as the man who makes two blades of grass grow where one grew before is a public benefactor, so the man who causes one man to cut the grass that two or three cut before is a public benefactor; he is a public benefactor in discharging the two men. So Mr. Feiss has not done any serious injury to society in discharging the one hundred and seventy-five men.

But on the screen he showed that eight hundred men produced forty-two per cent more goods and got thirty-seven per cent more wages and their time was cut down from nine hours a day to eight hours a day. Those men who got thirty-seven per cent more wages, what did they do with the money paid them as wages? They must have put it in a savings bank and the savings bank loaned it to somebody, who would spend it, and that person who spent it went ahead and hired the one hundred and seventy-nine men. It is a mathematical certainty that if eight hundred men got thirty-seven per cent more wages, that amount of wages has got to be spent by somebody. You cannot spend money without employing people, and those one hundred and seventy-nine got jobs in that way.

Mr. Sanford E. Thompson[2]: One of the pleasantest days that I have spent for some time was Tuesday of last week in Cleveland with Mr. Feiss going over his plant. He showed me over the shop, through the well lighted, well ventilated rooms, among the help, girls most of them, who were working with the quickest motions, yet with quietness and lack of nervousness. At noon we went out into the field where the girls were playing games,—one group playing baseball, another group playing captain ball, another group playing "three deep". Then he took me to lunch in the dining hall, where we were served with well-cooked, appetizing food. The plant impressed me as a modern shop with the old friendly interest. We hear a great deal about the difference between the old fashioned industry and the present day corporation—the old fashioned industry where one man employs three or four workmen and takes a personal interest in them, and the modern manufacturing plant where men and machines are on the same basis. Mr. Feiss' plant, with its seven hundred odd employes, is similar in principles and practice to the old fashioned shop where the one man is owner, manager, foreman, and friend, and thus comes in daily and hourly contact with his men.

The two points which stand out as distinctive in this shop are these: in the first place, the personal contact between the management and the people employed; and in the second place, the systematic plan for maintaining this personal contact. In another shop with a different kind of help we may have to use a slightly different method just as we vary, for example, the details of the routing system; but we may still have the same two fundamental elements—the personal contact and the systematic plan for maintaining that contact.

One thing must not be lost sight of—that the full results could not have been achieved except by (1) the adoption of scientific principles in both the manufacturing and service departments, and (2) the intimate personal relations between the management and the operatives. Without the high wages made possible by the systematic methods of fixing rates; without the uniform conditions of employment effected by the carefully planned sales; especially without the card records of the individual employees, the follow-up system to keep track of each individual, and the systematic supervision of the health, happiness, and recreation, even the best of intentions and actions would have failed to produce the harmonious atmosphere.

Along with this system, along with these scientific methods, must be the really personal relation. Either the manager himself or someone high enough in authority to discuss details with him—not simply receive orders from him—must be in close touch with him and appreciate the point of view of the men and women who work with their hands. It is this intimate relation which impresses one as the most distinctive feature in the management of Mr. Feiss' shop.

Mr. R. Poliakoff[3]: I had no intention to speak at this meeting, this being the first time I have spoken in any American meeting generally. I had no idea what the paper would be about which has been here read. If I take the liberty to say a few words, it is because I want to say a few words in relation to that insurance scheme which has been so highly emphasized in opposition to the idea which Mr. Feiss has laid before us. Of course, insurance is a very good thing, but to consider it the only remedy for unemployment I do not think is to view the matter in the proper light. An instance has been here quoted about Germany, with a plant like that of Henry Lentz at Mannheim, or Zeiss at Jena, where if unemployment occurs the employee is entitled to a three months' wage. That is very good, but I do not think it matters very much if I know in case of panic or unemployment I will be safe from starvation for three months and do not care what becomes of me afterward. From this point of view insurance is in Germany a good thing, but to look upon it as the only remedy against unemployment would be wrong, and you Americans have a good instance and good proof that that is the case. And this is it: That from Germany come large numbers here to get jobs because they cannot get them in Germany with their insurance scheme.

Mr. John M. Bruce[4]: I want to tell you one or two incidents that I think of about a point in the talk that Mr. Feiss has given you, pertinent, also to Mr. Gantt's remarks. Mr. Gantt said that team-work in the factory was really the big thing that Mr. Feiss had secured. I was at Mr. Feiss' office talking with him not very long ago, when one of the working girls came into the office crying, and said that she was going to quit her job. He asked her why. She said she had had three red marks that day,—a red mark on a card which the other girls can see being the only penalty for defective work in the Feiss plant. There is no fine. This girl had had three marks that day. Mr. Feiss asked her if the marks were not coming to her, if the work was not defective. She said, "The work was defective all right, but I have not had the time-study man near me for six months. The other girls get more help than I do."

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[2] Consulting Engineer, Newton Highlands, Mass.

[3] Asst. Prof. of Mechanical Technology, Imperial Technical Institute, Moscow, Russia.

[4] Consulting Engineer, New York City.

The other illustration that I want to mention is, I had a talk with my friend Dr. Franklin the other day about a certain kind of group insurance and welfare work based on the quality of the welfare work, and naturally in that discussion we both began talking about the Joseph & Feiss plant and its welfare work. Franklin said, "Perhaps we cannot say anything about that until we get new actuarial tables. They have done things that cannot be done. They have gone a whole year in that plant last year without a single case of tuberculosis. It has never been done and it cannot be done!"

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Mr. Robert B. Wolf[1]: It seems to me that Mr. Feiss, this evening, has clearly proved his point that the human side is the main factor in management. We have found in our own work in Berlin that if the human relationships are properly developed that the necessary material conditions are sure to come right. Because of the fact that the material conditions are, in the last analysis, creations of human minds, I believe that it is literally true that we do not have to consider any other element than the human element.

This statement will be a little clearer perhaps when I explain that whenever we wish to make a change in our manufacturing methods, or even in our manufacturing equipment, we invariably study how we can produce a desire in the particular group of individuals concerned to obtain the results we are after. This desire, once it is thoroughly aroused, will soon create the necessary modification in process and equipment to enable it to find expression.

It is needless to point out that the control of forces of this nature requires the highest type of scientific management and I am glad that the movement is at last taking this direction,—the direction I am sure Mr. Taylor intended it should take,—of laying the strongest emphasis upon the human phase of things.

If we are going to make our factories primarily institutions of learning, to teach the men how they can get the best out of themselves, we have, first of all, to develop the proper *esprit de corps,* or organization spirit. We must realize further that back of all this industrial activity are spiritual forces at work and it is our duty to learn to use these forces and above all to use them scientifically.

I take exception to Mr. Feiss on one point only, that is his statement that mill insurance cannot be properly run by the men. I refer to insurance against accident and sickness. I am going to send him the By-laws of our mill and mutual insurance company when I return to Berlin, and I will state here that it has been in operation five or six years successfully and the men have handled it entirely by themselves. I am sure that when you see these By-laws you will realize that it is unnecessary to call in an insurance actuary to show you how to run mill insurance.

Mr. Charles W. Mixter[2]: I feel constrained to disagree with the last speaker. What Mr. Feiss has given us is so inspiring that I feel like agreeing with it entirely. I would, however, rather agree that personal relationship is *a* basis of scientific management,—the crown and glory,—but not *the* basis. *The* basis is no end of detailed, unspectacular, grubbing work, getting the conditions ready for these fine things; work that takes infinite patience and courage. That is the thing that I got from Mr. Taylor years ago. We see all the pleasant things and do not look at the harsh means by which we pay the price, but it is the grubbing work that is the basis of scientific management. This is the crown and glory.

Mr. Carl G. Barth[3]: I want to emphasize what the last speaker said. I have worked in shops where they seemed to be moved by the principle of the Salvation Army, all talk about saving the soul. I tried to get at the workmen about fixing the machines and seeing that the material comes to them. Lots of fine, human material lying around does not give the service because of the rotten condition of the machinery and the materials.

I want to know whether the girls in Mr. Feiss' factory play together at noon or whether he has one play-ground for one set of employees and another play-ground for another set.

Mr. Feiss: They play together.

Mr. Barth: I am glad to hear that. In one place that I know of they had to give the girls uniforms to make them look alike. The girls in the office and shop would not mix, because one set thought they belonged to a higher class of society than the other, because they worked in the office. I am glad that that condition does not exist in Cleveland. I am glad to know that in Cleveland, where the people move around from one shop to another more than in any other town in the United States, Mr. Feiss has reduced the floating element to such a small percentage. This shows the trouble is not with the people so much as with the managers.

Mr. Feiss: In reply I perhaps may go into some detail, because none of the criticisms were as critical as I expected them to be. I shall try to reply in order to the speakers who have been kind enough to add to the little I have contributed, rather than to criticize or tear it down.

Mr. Kendall asked me about factory shut-down for vacation week. The other scheme has been tried by us and found unsatisfactory. If you are attempting to run a plant scientifically, you need everybody in that plant when it is running and it seems to me far better policy from that point of view alone to shut down at the end of a hard season's run as we do. We have our heaviest season in the summer, during the hottest months, when we handle big overcoats and heavy goods, and we have thought it wise to take some period that seems suitable because of the weather or other conditions, and shut down and let the people go away. Moreover one who tries to shut down piece-meal all through the summer has an everlasting problem confronting him. Very likely the men or women in one department wish to go away together. Naturally they are a little more intimate with each other than with others in the factory. It is very difficult to conform to their wishes or satisfy them in the distribution of vacations. Another proposition is this: the idea of distributing vacation weeks over a lengthy period, as I have seen it, does not work out practically. Someone always gets "stung". By the time it gets to the end of August and only half of the plant has been off, orders may start to come in, and some are not going to get their vacations. The better way is to give every one a fair opportunity for his vacation and let all go away together. Factory spirit is something which does not stop when the factory door closes, and it exists in vacation as well as at work. The best times that are reported to us, it may be of interest to you to know, come from these men, including the foremen and the superintendents, who go camping together. There are several large groups of workers that go out camping together. The girls who go away, including the women foremen, enjoy themselves in that manner, for instance, by taking one of the Young Women's Christian Association or other camps, forty or sixty of them in a crowd. It is impossible to do this when vacations are divided.

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[3] Consulting Engineer, Philadelphia, Pa.

Mr. Kendall also asked me about American born and foreign born and those of American parentage. Our records show that approximately fifty per cent of our force are American born; but only a small percentage are of American parentage. I believe they are typical American citizens. I do not think the point in this connection is important, however. Human nature is human nature the world over. It does not make any difference what flag men fly or what color their skins happen to be. There are principles and there are methods which will not only reach the factory girl and the man behind the machine, but will reach you, if you are a manager at your desk, in the same way. You are reached through the same avenues of approach. These people are just the same under their skins as you and I.

The question of home visits among Americans and foreigners, therefore, I am unable to answer, because we consider anybody that is with us either an American or a prospective American, and we home visit them regardless of whether they are foreign born or American born. Our home visiting is a very important part of the service work. You cannot separate all the elements that go to make up the life of an individual. The attitude at home is a big factor in the efficiency produced at the factory. An employee who has family troubles is never going to be efficient. An employee, a young woman or a young man, whose family is prejudiced against his working in a factory, and thinks there is more class to working in a department store or office, is never going to become a part of us and an efficient employee in the factory. You have to take pride in the game of cooperation, and they have to get it as well as you. If they cannot come to you, you have to go to them. The point is, to get them started coming to you. When every element, including the home attitude, is working in harmony, a man who has the spirit is bound to do his best to become efficient if it is within him to become efficient.

Taking up Mr. Noyes's points in some detail, I wish to answer Mr. Noyes's statements as regards different conditions making the problem different. There are undoubtedly different conditions, but the point that I am trying to get across—perhaps I have failed to do so—is that we are all trying to make conditions standard, and we ourselves have as much to do in making those conditions as any other element. Of course, conditions are different if you *let* them be different.

There is the man who says, "You can do these things, because of the different class of people you have." We have! I have shown them to you—the finest lot of people in the world. But they didn't just drop in through the chimney, nor did any kind Santa Claus wish them on us. We had to make them. The improvement might not all be due to personal relationship; and I did not mean to say that, nor was the title of my paper what Mr. Noyes made it, "Personal Relationship is *the* Basis of Scientific Management." I said, personal relationship as *a* basis of Scientific Management. I am willing to make it even stronger now. I want it understood when I say a basis of Scientific Management, I mean as a basis it is an essential part, an essential reason for Scientific Management coming into existence; if men or women were not necessary to help turn out a product, there never would have been any Scientific Management. The personal relationship may not be directly responsible for the improvement in management and conditions, but it is eventually responsible and there would not be any without it.

Now as to the question of the difference between office and factory. That is of some interest. I am sorry that I left it out of the main body of my paper, but we take these things for granted. We do not see any difference in our line organization. There is no difference between the people who are in our office or stores department and those who are in other departments. They all rank the same (according to the amount of responsibility they assume) as payroll foreman, stores foreman, etc., and they have all come up from the ranks. We have attempted, and succeeded to a great extent, in building up our organization from the material that we have on hand. We are constantly advancing people. I should like to enlighten those who are not in personal friendly contact with the people in the plant. There is a mistaken idea abroad among the general public that people are striving and craving to be advanced every day and all the time. I am going to shock some people by saying that they cannot find such people unless they hunt for them. A man or woman who comes into a shop, especially a scientifically managed shop, where conditions are right, and gets on the job where he feels content and makes money, is as hard to pry off his job as it is to open an oyster with a pen knife. Don't be mistaken about it. It does not mean that they are not intelligent or that they are not as serious-minded as you and I. It is just human nature. There are reasons why people who are satisfied with their work do not crave for anything beyond as long as their present work is giving them something better than they would have under average conditions. The problem in our factory and I believe in others is to get people to advance. We have no trouble in filling positions among the workers. We have a waiting list of from one hundred to three hundred all the time. We do not take applications from some people, but we are constantly getting together and figuring out whom we can get to accept a position of greater responsibility. I have enquired of other managers where conditions were similar and find that the problem is the same.

Mr. Noyes brought up the serious question—and many a manager has spoken to me about it—of getting the proper relationship between the office and factory. That such a question exists is the fault of the management. When the management has the factory worker coming in at the side door, hanging his clothes in a separate locker room, ringing up his time at seven o'clock and being docked when not on time; and when it has the office force coming in theoretically at eight, but practically between eight-thirty and nine, (and if they ring up a little late it doesn't make any difference) and when they have special locker rooms and other privileges, who could expect the office force to feel their interests to be the same as those of the fellows in the factory! That is the manager's fault. *He* is drawing the line. Incidentally this is a good illustration of one of those "different conditions" which many managers take for granted and permit to exist, and for which they alone are responsible. You may use different equipment for cutting steel than for cutting cloth, but the same principles apply to both problems. The same principles apply everywhere; people have the same sensibilities and the same feeling everywhere and can be approached in the same way. What we are attempting to do is to have systematic contact and a systematic method of using that contact.

In regard to Mr. Cohen's scholarly dissertation on unemployment insurance, I have been asked by some of my friends to enlarge upon the subject of insurance. I did not say more about it, because I do not know much about it. I do not think very many of us do know much about it. From the viewpoint of establishing insurance and insurance funds—this in answer to Mr Wolf also—there is so much to be said on this subject, so much to be known about it, that it is not comprehensible to us ordinary mortals, unless we make a business of it. The business of a man running his machine and the business of running our plant is pretty much a life work with him and with me, and insurance is a work big enough to be a life's work for somebody else. Another point that Mr. Poliakoff so aptly answered about insurance. It is one thing to pay a man who is out of employment, but that is not solving the unemployment problem for him. He does not want the pay, he wants a job. To solve the unemployment problem is not to furnish him pay for nothing, but to furnish him employment, and you must not let that out of your sight for one moment. When you furnish a man something for nothing, that is charity, and men do not want charity; they want opportunity and justice. Moreover, a plan that may be successful in paternalistic Germany would work out differently where men are accustomed to stand on their own feet and support the government instead of having the government support them.

Referring to Mr. Wolf's proposition, I want to say this: Even if he has the best co-operative scheme in the country, I am convinced that a co-operative scheme is not good enough. It is not scientific. I can prove to you—I cannot do it offhand, but I can with materials on my desk, I believe—that no co-operative scheme, unless it is under the direction of an expert, can give people scientific and economical insurance. Insurance must be safe and sure, that is, an insurance scheme that has been worked out by men whose business is insurance.

Mr. Gantt spoke of Mr. Taylor's methods of accurate knowledge being the thing that counts. I agree with him absolutely. I am trying to make the point that there is such a thing as accurate knowledge in dealing with men. Many foremen that I know personally, nice fellows too, make nine-tenths of their mistakes by flying off the handle as a result of inadequate or inaccurate knowledge concerning men. They are pretty accurate when they talk about materials,—about cloths and buttons, bolts and screws,—because that is something concrete; but when they deal with men they deal with all the intricacies of psychology and all the complexities that go into the human make-up, and they are not accustomed to, or often not capable of, being accurate. But there are some simple principles in handling men and of obtaining accurate knowledge regarding them, that have to be taken into consideration if Scientific Management is scientific and if handling men is management. I want to say another thing on that point, because it has something of the essence of what I am trying to get at. If accurate knowledge is applied to your responsibility to the man at the machine, you will develop all the instruments and methods of Scientific Management. They will come along from that point of view alone.

We are not paragons of Scientific Management or anything else; but we feel that we are traveling along the right road. Some of the men present have done us the honor to compliment us not only upon the subject spoken of here, but also upon our efficiency in handling materials and other matters. Every one of our methods has been developed from this point of view. When a young man or woman comes into the plant to work *with* you, as we say, there immediately arises a relationship that is contractual both morally and legally. That relationship on your part as manager is to furnish that man with proper conditions of all kinds and the best possible opportunity so that both you and he can turn out more wealth, more of the things of life that you and he want. He would never come there if he was not able to gain by working with you; and you would not employ him and pay him if you had not something to gain by his co-operative effort. If this be so, the responsibility of management is a very simple thing. It is not so complicated as some writers would have us think. You have an obligation to work with him, to do your share. I say candidly, as a manager, that the majority of the faults in industry are because most of the managers do not recognize their responsibility or if they do, they shirk it. You have to do for Tom Jones or Mary Smith the best that you know how. You demand of Tom and Mary that they do the very best that they know how. Perhaps sometimes you demand more than you have a right to expect. Because they have not your opportunity by reason of their positions to demand openly and straight-forwardly from you your share of the duty, it is all the more incumbent upon you to realize it. If you cannot, you ought not to hold the position as manager. If you realize what your duties as manager are, it is up to you to see that Tom Jones has a machine as good as Bill Brown's. If he has not, you are either incapable or unjust. It is up to you, if you see your duty—as you will better and better when you get more into the game—to see that the machine is not only as good as Bill Brown's, but as good as any Bill Brown's in the world, with the right speed, the right feed, and so forth. This is done absolutely from the personal point of view. Incidentally, if you are managing a large organization, it is your duty to furnish Tom Jones sufficient work, in order that you may get out the largest possible production for your partners or board of directors, because that is what you are there for. This being so, it is your duty, if Tom Jones is a $4-a-day man, to see that his time is not wasted by putting him on work that a $2-a-day man can do. Incidentally it is your duty not to waste the firm's money nor increase the cost to the consumer in this manner. All the time remember that every bit of this is based on your responsibility to Tom Jones as a man and to your board of directors or other colleagues as men; your relationship to whom imposes a certain trust upon you. It is very easy to carry the idea further. If it is your duty to see that Tom Jones has the best possible conditions, it is also your duty to see that Tom Jones does not make twice as many motions, nor use twice as much nervous energy as is needed to perform his work. It is up to you, because it is obviously a responsibility of management and because the management alone has the means for acquiring the necessary knowledge. I could carry this line of argument on, but I wish only to carry it far enough to make the point clear, far enough for you to see that personal relationship—your duty as a man to the other man, and the responsibility put on your shoulders—makes you do these things and do them scientifically. It is this idea, I am sure, that Mr. Taylor had in mind when he laid down the principles of Scientific Management.

Mr. Kent brought up a point about the one hundred and seventy-nine who dropped out of the organization. That is a question frequently asked in connection with Scientific Management. The one hundred and seventy-nine who left our employ, left during a period of about four and a half years. Not a single man in our employ was ever laid off to make way for improvements. We take the responsibility of keeping everybody in our organization as long as anybody else and as long as we have any work. No matter how perfectly your plant may be run, you have to deal with facts and actual conditions. Men do not live forever; and all your men do not stay with you forever. There is in the best managed plants, and always will be, a percentage,—a percentage that can be kept at a minimum,—of employees who are dropping out. Three-fourths of our employees are women and naturally a number of them dropped out on account of marriage. Others dropped out because they were not suited to our particular organization or industry. Others dropped out because of sickness; a few because of death—although it is against the rules in our plant to die. For one reason or another, either avoidable or unavoidable, people do drop out. Moreover, changes are not made overnight. The ordinary change in our plant takes over two or three months. People need not be laid off for changes in a plant. You are not putting a burden upon the community when the people that naturally drift away from you are allowed to go their way and are not replaced. In the natural course of events industry will re-employ them. It is only a short period of time when we will need more space and then more people. The burden of industry is not only to make two blades of grass grow where one has grown, but to make as many blades as possible grow in the smallest possible space.

Mr. Bruce was kind enough to tell you a story about a young woman at our plant. We have a lot of stories of a similar nature that we could tell. It brings out a point that I did not touch upon and that is important as applying to every phase and method of industry. In discussing the methods of the selection of elements in time study with Mr. Barth today, we fortunately agreed on the fact that the method applied at a particular plant was not so important, as long as the same method was applied to every employee in that particular plant. This young woman was not treated unjustly as things go, but she was not accorded the same treatment as somebody else,—or thought she was not. That is a very important point in the question of justice and democracy. It is not only important that people are treated fairly and are given a square deal as compared with the ordinary standards outside the plant, but it is important that every human being in that plant—and this applies to the question of the office force—is treated on the same basis. It is not enough that you have better opportunity for one-tenth or nine-tenths of the organization; you must have an equal opportunity for ten-tenths.

Very fortunately Mr. Barth and I absolutely agree (at least very fortunately for me) that before some of the things that we can do and have done are done, the conditions in the factory must be taken into consideration. The people in the service department, the people behind the accountants' desks and the people anywhere should be and must be educated to be conversant with all phases of conditions that affect employment. When a machine is in such a rotten condition as Mr. Barth illustrates, it is not possible for a man to earn a good wage simply because it is not possible for the concern to pay him a good wage.

In answer to Mr. Barth's questions about the office force and others mingling—I believe I touched upon this point before—I want to say something about our dining rooms. The people in our dining room choose their own places at the tables. We have but one rule about it: no two foremen or no two office or stock room employees may sit at the same table. We go further than Mr. Barth's idea; we see to it that they do not clique.

As regards Mr. Barth's theory of putting things into condition and the question of pay, I have recently had two opposing doctrines propounded to me. One man had the effrontery to get up and say that men work only for money. If this were true, then there are a number of men in this room who would have retired long ago because they have enough to live on. If this were true, people would never go out on strike except for wages. Another man propounded to me this proposition; after showing pictures of his factory—and his factory looked like a nice place to work in—and saying that this had some effect on his labor turnover and the spirit of the plant, he said, "You see this proves that men do not work for money; they work for contentment. If they are satisfied, the money is not the question." If you believe that, try having a man work for you without paying him. Like many of these extreme statements the truth lies between the two. Men do not work only for money and they do not work only for contentment. They work for both and the one can never replace the other. Contentment with the things that you are doing for him, or think you are doing for him can never replace wages. The minute you feel in your heart, whether you express it or not, that because a man has a nice dining room to eat in, because a man has a little better looking wall space confronting him than somebody else, that he is going to work for less, you are making capital of your duty at his expense and you have no right to do it. You do these things because it is just and because it makes a man more efficient and because it puts more money in your pocket as well as his. If you think that men care for money alone, you have only to ask yourselves if that is the only reason you are working. It is true that men and women would work in a plant such as ours for less money if they had to, but that is no reason why they should. The reason for having proper conditions in a plant is that the men and women can earn more money for themselves as well as for you. The reason that you are interested in their contentment, is because they need both contentment and wages to live properly, and you want them to live properly, so they can steadily make money for you as well as for themselves. Don't forget that this is the fundamental basis.

This line, (referring to cost line, Fig. 6), which represents manufacturing cost, covers everything, including the development of the service and employment department, up-keep of kitchen and play grounds and everything else which goes into our general manufacturing expense.

I am sorry to have taken so long, but there is so much to be said on all these points that it is hard to refrain from going into some of them in more detail. In conclusion I wish to say this: there is not only no science of management but there is no management without personal relationship. I agree with Professor Jones when he says that all management relates to the handling of men. I believe that all of Mr. Taylor's followers (and those who are trying to work along correct lines are really his followers, whether they claim to be or not) think the same. I know Mr. Taylor (and I think all the rest of us) deemed Scientific Management to be a solution of the industrial problem. The industrial problem is not a problem between you and the machine, but between you and the workman. As its solution is, therefore, a question of personal relationship, I am willing to go further than to call it *a* basis of Scientific Management and say that personal relationship is *the* basis of Scientific Management.

THE PROGRESSIVE RELATION BETWEEN EFFICIENCY AND CONSENT[1]

By Robert G. Valentine[2]

Definition of Scientific Management.

1. By scientific management I mean those principles of business conduct which are both explicit and implicit in the life and work and writings of Frederick W. Taylor.

2. I mean those principles considered in their purity as principles and considered apart from the particular and local applications of them made by Mr. Taylor.

3. I mean those principles considered as principles very gropingly stated by him and as to statement still in their youth, so to speak.

4. I mean those principles considered as one root of economic life, and to that extent thoroughly sound, but still showing clearly in their present statement that they have not been worked into thorough co-ordination with other equally vital principles of the economic and social world.

5. By scientific management I mean further the attempts to apply the principles as stated by Mr. Taylor as they are applied, for example, in the Tabor Mfg. Company of Philadelphia, the Plimpton Press of Norwood, Mass., and the Link Belt Company of Philadelphia.

And the actual methods of applying the principles at those plants I regard as only indicative of what the *real application* of the principles as laid down by Mr. Taylor would be. They are sufficiently indicative, however, to furnish the materials for a sketch of an ideal shop run according to the Taylor principles. They further furnish us, I believe, with the basis for the belief that the principles stated by Mr. Taylor, in so far as they are fully applied, furnish the latest word in the progress of the mechanics of industry. For simplicity in this paper, we shall deal with these principles only from the point of view of the mechanics of production.

I am not forgetful of two important facts in connection with Mr. Taylor's life:

1. That many of the impressions he conveyed in describing his ideas did his ideas themselves and his real spirit great injustice.

2. That his own conception of much that is contained in his writings is in many cases fragmentary and apparently short-visioned.

It is, nevertheless, my belief that when the fullest allowance is made for these two facts, Mr. Taylor's contributions to the industrial world will gradually prove themselves to be among the major contributions to human progress. The human limitations of Mr. Taylor's thinking and methods of expression and the crudities of the application of his principles in practice at the present day will weigh little as compared with the revolutionary effects his conceptions will have on the progress of the world when they are thoroughly understood and freed from the short vision and from the ignorant, the merely imitative, or the shyster practitioner.

It should also be noted at this point that much which is being done under the name of scientific management and much of the criticism of scientific management is only serving to give undue importance to the work of the efficiency charlatan, to the loose social thinker, and to the attitude of the half-informed public, all of which obscures the real issue. The useful thing to do is for all persons honestly interested in the subject to simplify the problem and to try to solve it in its purity apart from considerations which are not of its essence. It is precisely this which both the most earnest advocates of Mr. Taylor's principles and the most earnest advocates of labor had failed to do up to the time of Professor Hoxie's work. If Professor Hoxie can complete his work through digesting the materials he has gathered, and also through making an investigation of labor in its relation to scientific management as he has made of scientific management in its relation to labor, we shall begin to be in a position where we can get at the question of scientific management in a truly scientific fashion.

Our Problem Today.

Our immediate task together is to see whether we can begin at the present time to get a line on that genuine application of the principles of scientific management which is beneficial to society as against that alleged application which is dangerous to society. I shall try today merely to lay the grounds for the discussion of what I believe to be one basic standard of judgment. If we try to state the problem clearly, I believe that we shall be able to formulate this standard. The standard by which to judge is to ascertain whether any particular application of the principles involves the recognition of a truly independent and organized consent on the part of the workers.

By my statement of the problem I shall endeavor to show that the standard as above stated is a primary standard by which to judge all management.

The Efficient Shop.

Let us begin by getting clearly in our minds a picture of an efficient shop as we can easily construct it out of the principles laid down by Mr. Taylor and even out of the present attempts to apply those principles.

I shall picture this shop only in outline because you are all familiar with the details of the picture. I simply want to be sure that we do not lose the proportions of the main outlines in the particular interest which any one of us may have in certain particular aspects of the picture. In my description of this shop I shall, for the moment, ignore the human element entirely as it actually exists in the shop and describe the people handling the operations of which I shall speak as people who, whatever they may be outside the factory, are while in the factory simply animate machines, people who have either been trained or trained themselves, it matters not which for our present purpose, to do their work with all the precision of the most marvellous engine and with all the automatic delicacy and grace and perfect adaptation to environment of the poised bird on the wing.

In such a shop first of all we should find Mr. Taylor's principles applied to the financial and sales ends of the organization. These applications I shall not pause to consider here (because, for simplicity's sake, we shall deal only with the strictly production problem) further than to point out that in any really efficient organization the high spots all along the line must be secured as to their efficiency before the more minute details are highly developed. A great deal of the scientific management in use at the present day, whether in sales, finance, production, or personnel, is similar to the situation in which a great deal of money might be spent in curing a person of flat foot who had some disease of the knee which might lead to amputation. This lack of co-ordination is an excellent illustration of one of the basic inefficiencies which penetrates the whole world today.

Assume, however, that the ideal shop we are picturing to ourselves has avoided these insults to common sense. It will on its production side proceed to organize every single one of its activities in relation to every other activity. That is the essence of the whole matter. That is the essence both of planning and of action in a shop. That is the essence of work analysis, of stores keeping, of the lay-out of equipment, of routing, of functionalizing and of costs flowing steadily and thirteen times a year into the profit and loss statement as a by-product of the management practice itself.

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[1] Abstract of an address to be presented at a meeting of the Society to be held in New York December 10 and 11, 1915.

[2] Industrial Counselor, Boston, Mass.

In such a process of organization all former standards are revalued, all precedents are fearlessly analyzed; no process which has been improved upon is retained a moment longer than is necessary smoothly to instal the better process. The crafts and trades as we have known them are progressively broken up under this process; work is ever more and more specialized and the steady tendency throughout, because of the fact of this specialization, is to need at any particular point of any particular operation the thinking, judging human being less and less, so that the mechanically and easily-trained human being more and more is used, and more and more tends in his turn to give way to inanimate machinery. At the same time that this tendency is going on, the brain of the shop, as has been aptly said, is developing in the planning room until the shop is becoming as perfect an organization of relationships between brain and nerve and muscle as is the human body.

In itself all this is good and but the logical outcome of the introduction of machinery. It means lower unit costs and more wealth. Any force of society which attempts to turn back this progress, or halt, or even slow it up is contending with the inevitable. Such a factory as we have outlined is unquestionably the type of the major production method of the near future throughout the world under any form society may take.

Re-enter the Human Being.

So far we have no problem. But the moment that we substitute in the ideal factory which we have sketched the human being as he exists in the world today, we have our problem. People who have been no less pioneers and discoverers in the field of both general and social psychology than Mr. Taylor was in the mechanics of business organization, have found certain principles as basic as Mr. Taylor's and which spring from quite other roots. These equally fundamental principles center in this statement: the days of compulsion—the days of service without consent, are over. In tremendous areas compulsion still exists. We are still conscripted into the world. We are still in great areas of our lives the unconsulted objects of powerful forces. With all our magnificent engineering achievements and somewhat more slowly developing common sense, we are still individually and collectively the apparent sport of earthquake or lightning. When we have once decided to take passage on the sea, we have, so to speak, enslaved ourselves to the possible storms at sea. But in all those areas of life wherein man deals with man, great breaches have been made in the ranks of compulsion. We find, however slowly and haltingly, through the decades a steadily increasing assertion of the right both of the individual and of the individual in groups to give his consent to that which from any other human quarter it is desired him to do.

Consent from the point of view of life in the factory has two main types: individual consent and group consent.

As to individual consent, in some cases it is of the type of the traveler who decides to take ship, abandoning at the factory gate, as the other does at the dock, the right of being consulted by the management as the other does the right of being consulted by the captain. In other cases, continuous rights of consent are still retained.

As to group consent, it is of two kinds: the consent of the factory group by itself, and the consent of the factory group as a part of an inter-factory group.

The most casual study of the whole principle of consent will show that it always tends to strike its roots into wider and wider areas. It is the failure to recognize this principle, for example, which makes the present Rockefeller plan in Colorado a sociological joke and in the future, as in the past, likely to hold a sociological tragedy.

I think there will be little debate among any of us as to the general proposition that a free man—a consenting man—is the more desirable worker. Where we have broken down in imagination is in failing to realize that organized consent as well as individual consent is the basis of a more efficient group. We have been accustomed too much to think of democracy as almost necessarily a mere crude expression of untrained information through votes. Almost nothing has yet been attempted to build up a finer texture of democracy through self-training groups, constantly growing in strength through the consideration of scientifically accurate data.

Another error which we have lazily accepted as a failure of democracy is the idea of life as a fairly static thing. This error is clearest seen in the common statement that certain types of people, certain whole groups of people as well as certain individuals "are not worth any more." The reason they are not worth any more is largely because no adequate educational process has been tried. The theory is disproved by our immigrants when they are given the right chance. It is disproved in the tremendous progress the children in our schools make over the status of their parents. It is disproved above all by the absurd implication that human beings are less the field of the inventive organizer than machinery. More than any other one thing, life is an educational process and it is only when life is artifically restrained, artifically hampered, that, because the educational process is lacking, we wrongly thing of life as static and of classes as efficiency castes.

The problem then is to combine, not through failure to come to grips and not through hostilities, but in constructively organized ways, the latest developments of efficiency in production with the latest developments of the science and art of democracy.

A primary standard then by which I should judge scientific management would be to consider whether or not the scientific manager and the student of social psychology, who, in shorter terms, might be called "the man of affairs," were jointly addressing themselves to the solution of this problem—the relation between efficiency and consent—in each particular industrial concern; and whether they were recognizing that the ultimate ideal will be the consent of the inter-factory group as the only one broad enough on which to build stable conditions of efficiency co-operatively with adequate safeguards to ensure that the human educational process shall not be turned back, stopped, or delayed any more than efficiency shall be turned back, stopped, or delayed. The educational problem is the fundamental problem of statesmanship and it is a minimum demand of that statesmanship that industry shall be a school of citizenship.

Conclusion.

Three points emerge clearly:

1. That craftsmanship in the old sense of the term is doomed.

2. That as craftsmanship can no longer furnish the base on which labor organization can grow, unionism, group action, will have to build itself up on a base as broad as the whole educative process itself instead of on the particular educative process of a particular craft. Even today the real strength of unionism is that unions are effective consumers' organizations with a primarily educational interest. As this fact gradually sifts through the finds of employers and managers they will gradually see that the most inefficient thing they can do is to fail to co-operate with such a great source of energy. The organizations of workers, on their side, can, when once that stand is taken, be counted on to consent to all that makes for efficiency. They will do this because in all legitimate enterprises—which are all enterprises where real service to the public is the test—the workers and the management will be equally concerned in perfecting the service. And at the same time, under constitutional industrial relations, they will contest the share in the management and the share of the product between themselves and with the consumer.

3. That the inter-relation of the forces we have outlined—the forces of efficiency and consent—is constantly taking place in the world today in all kinds of crude and unorganized ways. Here and there real elements of inter-organization between efficiency and consent appear. But for the most part the labor agreements in operation today are looked upon by employers as a necessary evil and by the workers as steps in their assertion of their rights as consumers and having little detailed relation to production processes. The beginnings of something far better than this are seen in the agreements in the garment trades wherein the manufacturers, the workers and the public are all represented as parties; and in certain kinds of organization which are being worked out in a few business concerns. There is still too little of real accomplishment in this direction to enable us to predicate with any certainty what the course of the development in details of organization will be by which efficiency and consent are made continuously revitalizing agents for each other.

Yet I believe that the point has been reached where it is profitable to attempt to gather together such experience as has been gained and relate it to the probable development of the next few decades.

With this purpose in view, I submit the accompanying chart.

This chart, it should be constantly borne in mind, is neither a dogmatic nor propagandist document. It is merely a working hypothesis by which to test out the facts of business as they occur daily at the desks of managers and at the trade union council tables, or in the occasional assemblages of unorganized labor. The whole aim of this discussion, as I see it, would be falsified if we deluded ourselves into believing that in any seeming array of facts, we had found the truth. The only unforgivable thing would be that we, as social scientists, neglect to take into consideration any facts of the moment connected with all the forces that do exist; the only thing that seems to me axiomatic is that when forces do exist, they are better when organized, trained, educated, developed and enlisted in an effective way—anything you like—rather than allowed to play among and upon us blindly.

The picture of these forces submitted in this chart may be summarily commented on, as follows. In every form of factory there are human forces at work which, whether they are organized or not, are of at least equal importance with the forces governing sales, production, and finance. These forces take the two aspects of relationship to a growing intelligence on the part of the managers and a growing intelligence on the part of the employees.

Where these forces are organized they may take the form shown on the chart under the personnel heading at the left end of the factory line and under the co-operative association heading shown at the right end of the factory line. The relation between efficiency and consent is provided for, in the form of organization shown, through the relationship between the research department of the education division and the determining boards and wage boards. The research department is where plans of organization are worked out and where work analysis is done. The determining boards and wage boards, acting on the scientific facts put before them or the nearest approximation to such facts that can be obtained, sanction the findings in the name of the interests of all concerned.

The facts thus put by the research division before the determining boards and wage boards furnish the material for the whole structure of organization and become an inescapable factor at every debatable point. Thus, if appeal be taken from any findings of a determining board, or wage board, to the arbitration board shown on the chart, the case is necessarily considered in the light of the best available facts.

Related to the factory, sometimes by formal agreement and sometimes through the entirely unorganized relationships of its individual members, are the local and district unions, or even the mere incoherent thoughts and feelings of unorganized labor. As organization begins to take any shape at all, it begins to crystallize into some form of a shop-union council wherein the interests of the factory and of the local and district unions are to some extent formally organized. In such forms of organization as the garment trades, the shop union relationship has formally added to it the third relationship of the public.

The questions which come before such a shop-union council divide broadly into questions affecting the conditions of work and questions affecting pay. In the shop-union council's consideration of these questions, the findings of the determining boards and of the wage boards are before it so that here again the best available facts necessarily form the material of the discussion.

As to conditions of work, experience so far tends to show that all questions are arbitrable; namely, they are capable of being decided by an impartial third party on the basis of the facts presented.

Questions of pay, on the other hand, are still so unsupported by scientific basic facts as to be a matter of conciliation rather than of arbitration.

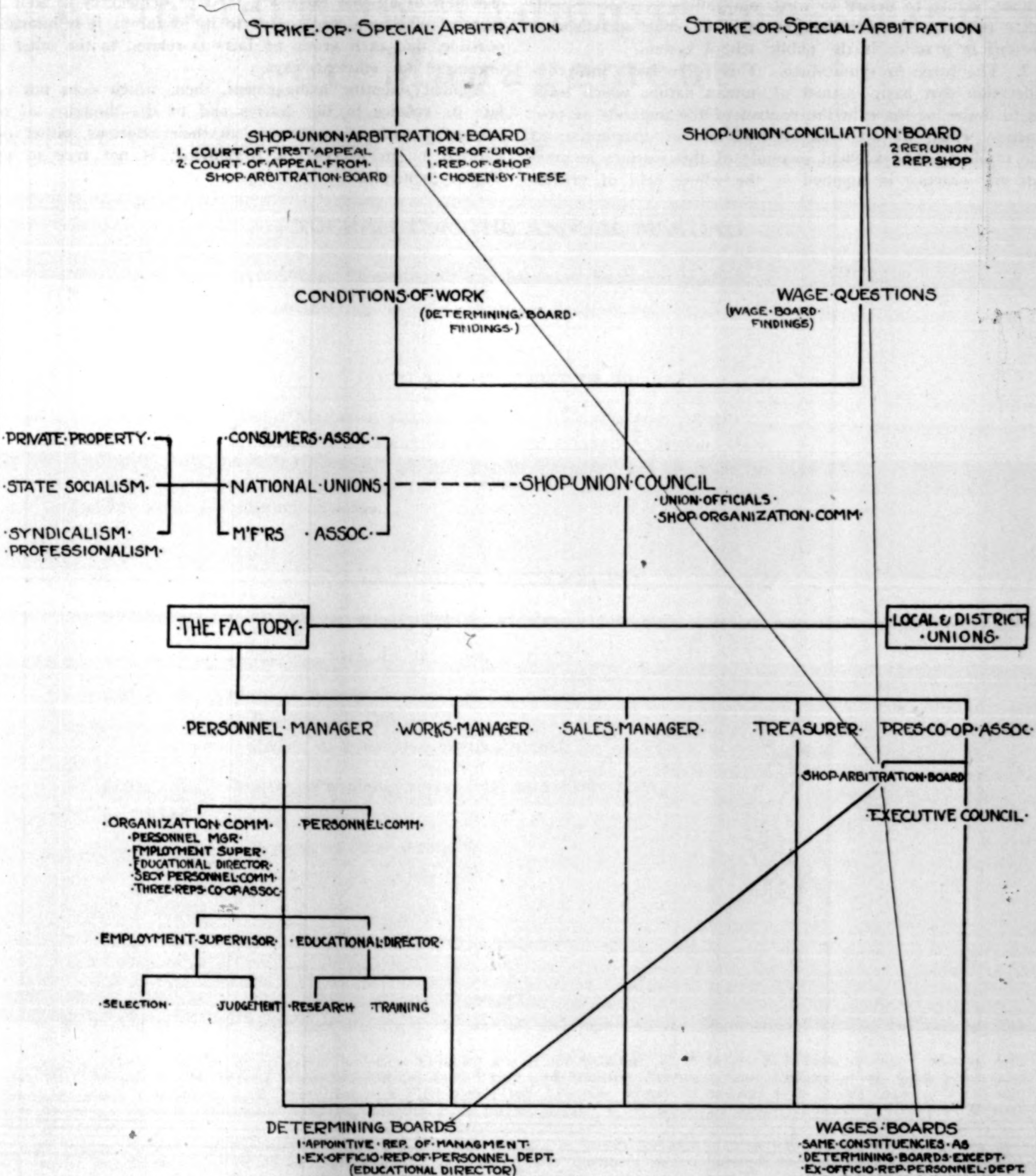
It will be seen in the chart that appeal lies from the shop arbitration board to either the shop union arbitration board or the shop union conciliation board.

At this point, it should be emphasized again that nothing on this chart indicates anything artificial in organizaton. The attempts that are going on, so far as the chart expresses them, are attempts to strengthen and make saner and sounder the organization of untamed forces which do exist.

This point should equally be borne in mind in the relation of the shop-union council as depicted on the chart to those natural forces which exist in society at large in a more or less unorganized state; namely, consumers' control, whether private or public, the national and international labor unions and manufacturers' associations. These present day forces of social and industrial organization are in their turn more or less crude expressions of three underlying forces shown to us by social psychology, which will in all probability work out between them the society of the future. These three basic drifts appear to be:

POSSIBLE·RELATIONS·BETWEEN·FORCES·OF·EFFICIENCY·&·CONSENT

ROBERT·G·VALENTINE



1. The fundamental soundness of the principle of private property. This element takes into account the fact that it is a basic instinct of human nature for the individual to desire possession.

2. The force of state socialism. This force takes into consideration the fact that it is equally a basic instinct of human nature to desire to work out things in concert with one's fellows. An excellent example of state socialism at present in practice is the public school system.

3. The force of syndicalism. This force takes into consideration that basic instinct of human nature which leads us to desire to share in the control of the methods of production which we are concerned in and in distribution of the product. An excellent example of this instinct in present day practice is supplied by the whole field of professionalism as seen concretely in medical societies and bar associations.

Such a study as we have outlined here of the forces at work in the world and of our duty to attempt to organize them exactly as the student of electricity has organized that force, makes it the job of the industrial statesman to recognize first of all that there are facts of democracy as well as facts of efficiency, and to see to it, so far as it is humanly possible, that each group of facts is related to the other in organized and efficient ways.

Applied scientific management, then, which does not relate its science to the desires and to the thoughts of all connected with a concern in all their relations, either organized or in process of organizing, is not true to the Taylor principles.

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PROGRAM FOR THE ANNUAL MEETING

Friday, December 10, and Saturday, December 11, 1915.
At Engineering Societies' Building, 29 West 39th St., New York City.

FRIDAY, DECEMBER 10

8.15 P. M. "The Progressive Relation between Efficiency and Consent".
By Robert G. Valentine, Industrial Counselor, Boston, Mass.
(An abstract of Mr. Valentine's paper will be found on page 3.)

9.30 P. M. Informal Smoker.

SATURDAY, DECEMBER 11

9.00 A. M. Discussion of Mr. Valentine's paper.

12.30 P. M. Luncheon, main dining room, Engineer's Club, $1.50.

2.00 P. M. Business Session.
Election of Officers.
Report of committee on constitution.

6.00 P. M. Dinner, main dining room, Engineer's Club, $2.00.

8.00 P. M. Business Session.
Reports of other committees.
Discussion of Society policy.

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NOTES

The Engineer's Club is on 40th Street directly in the rear of, and joined to the Engineering Societies' Building on 39th Street.

Hotels convenient to the Engineering Societies' Building are Hotel Belmont, 42nd Street and Park Avenue; Murray Hill Hotel, Park Avenue at 41st Street; Hotel Manhattan, 42nd Street and Madison Avenue; Hotel Knickerbocker, 42nd Street and Broadway; Hotel Woodstock, 43rd Street, between Fifth and Sixth Avenues; Hotel Algonquin, 44th Street, between Fifth and Sixth Avenues. Further information may be obtained from the chairman of the local committee, Robert T. Kent, 64 Orange Road, Montclair, N. J.

The Friday evening and Saturday morning sessions will be open to guests including ladies. Members are requested to cordially invite any friends who would be interested. In inviting guests, members are requested to send them copies of this bulletin supplement with return post cards attached in order that accurate information may be gained of the total number to be expected. Guests so invited are requested to send in the attached postal cards.

THE PROGRESSIVE RELATION BETWEEN EFFICIENCY AND CONSENT[1]

By Robert G. Valentine[2]

Definition of Scientific Management.

1. By scientific management I mean those principles of business conduct which are both explicit and implicit in the life and work and writings of Frederick W. Taylor.

2. I mean those principles considered in their purity as principles and considered apart from the particular and local applications of them made by Mr. Taylor.

3. I mean those principles considered as principles very gropingly stated by him and as to statement still in their youth, so to speak.

4. I mean those principles considered as one root of economic life, and to that extent thoroughly sound, but still showing clearly in their present statement that they have not been worked into thorough co-ordination with other equally vital principles of the economic and social world.

5. By scientific management I mean further the attempts to apply the principles as stated by Mr. Taylor as they are applied, for example, in the Tabor Mfg. Company of Philadelphia, the Plimpton Press of Norwood, Mass., and the Link Belt Company of Philadelphia.

And the actual methods of applying the principles at those plants I regard as only indicative of what the *real application* of the principles as laid down by Mr. Taylor would be. They are sufficiently indicative, however, to furnish the materials for a sketch of an ideal shop run according to the Taylor principles. They further furnish us, I believe, with the basis for the belief that the principles stated by Mr. Taylor, in so far as they are fully applied, furnish the latest word in the progress of the mechanics of industry. For simplicity in this paper, we shall deal with these principles only from the point of view of the mechanics of production.

I am not forgetful of two important facts in connection with Mr. Taylor's life:

1. That many of the impressions he conveyed in describing his ideas did his ideas themselves and his real spirit great injustice.

2. That his own conception of much that is contained in his writings is in many cases fragmentary and apparently short-visioned.

It is, nevertheless, my belief that when the fullest allowance is made for these two facts, Mr. Taylor's contributions to the industrial world will gradually prove themselves to be among the major contributions to human progress. The human limitations of Mr. Taylor's thinking and methods of expression and the crudities of the application of his principles in practice at the present day will weigh little as compared with the revolutionary effects his conceptions will have on the progress of the world when they are thoroughly understood and freed from the short vision and from the ignorant, the merely imitative, or the shyster practitioner.

It should also be noted at this point that much which is being done under the name of scientific management and much of the criticism of scientific management is only serving to give undue importance to the work of the efficiency charlatan, to the loose social thinker, and to the attitude of the half-informed public, all of which obscures the real issue. The useful thing to do is for all persons honestly interested in the subject to simplify the problem and to try to solve it in its purity apart from considerations which are not of its essence. It is precisely this which both the most earnest advocates of Mr. Taylor's principles and the most earnest advocates of labor had failed to do up to the time of Professor Hoxie's work. If Professor Hoxie can complete his work through digesting the materials he has gathered, and also through making an investigation of labor in its relation to scientific management as he has made of scientific management in its relation to labor, we shall begin to be in a position where we can get at the question of scientific management in a truly scientific fashion.

Our Problem Today.

Our immediate task together is to see whether we can begin at the present time to get a line on that genuine application of the principles of scientific management which is beneficial to society as against that alleged application which is dangerous to society. I shall try today merely to lay the grounds for the discussion of what I believe to be one basic standard of judgment. If we try to state the problem clearly, I believe that we shall be able to formulate this standard. The standard by which to judge is to ascertain whether any particular application of the principles involves the recognition of a truly independent and organized consent on the part of the workers.

By my statement of the problem I shall endeavor to show that the standard as above stated is a primary standard by which to judge all management.

The Efficient Shop.

Let us begin by getting clearly in our minds a picture of an efficient shop as we can easily construct it out of the principles laid down by Mr. Taylor and even out of the present attempts to apply those principles.

I shall picture this shop only in outline because you are all familiar with the details of the picture. I simply want to be sure that we do not lose the proportions of the main outlines in the particular interest which any one of us may have in certain particular aspects of the picture. In my description of this shop I shall, for the moment, ignore the human element entirely as it actually exists in the shop and describe the people handling the operations of which I shall speak as people who, whatever they may be outside the factory, are while in the factory simply animate machines, people who have either been trained or trained themselves, it matters not which for our present purpose, to do their work with all the precision of the most marvellous engine and with all the automatic delicacy and grace and perfect adaptation to environment of the poised bird on the wing.

In such a shop first of all we should find Mr. Taylor's principles applied to the financial and sales end of the organization. These applications I shall not pause to consider here (because, for simplicity's sake, we shall deal only with the strictly production problem) further than to point out that in any really efficient organization the high spots all along the line must be secured as to their efficiency before the more minute details are highly developed. A great deal of the scientific management in use at the present day, whether in sales, finance, production, or personnel, is similar to the situation in which a great deal of money might be spent in curing a person of flat foot who had some disease of the knee which might lead to amputation. This lack of co-ordination is an excellent illustration of one of the basic inefficiencies which penetrates the whole world today.

Assume, however, that the ideal shop we are picturing to ourselves has avoided these insults to common sense. It will on its production side proceed to organize every single one of its activities in relation to every other activity. That is the essence of the whole matter. That is the essence both of planning and of action in a shop. That is the essence of work analysis, of stores keeping, of the lay-out of equipment, of routing, of functionalizing and of costs flowing steadily and thirteen times a year into the profit and loss statement as a by-product of the management practice itself.

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[1] **Abstract of an address to be presented at a meeting of the Society to be held in New York December 10 and 11, 1915.**

[2] **Industrial Counselor, Boston, Mass.**

In such a process of organization all former standards are revalued, all precedents are fearlessly analyzed; no process which has been improved upon is retained a moment longer than is necessary smoothly to install the better process. The crafts and trades as we have known them are progressively broken up under this process; work is ever more and more specialized and the steady tendency throughout, because of the fact of this specialization, is to need at any particular point of any particular operation the thinking, judging human being less and less, so that the mechanically and easily-trained human being more and more is used, and more and more tends in his turn to give way to inanimate machinery. At the same time that this tendency is going on, the brain of the shop, as has been aptly said, is developing in the planning room until the shop is becoming as perfect an organization of relationships between brain and nerve and muscle as is the human body.

In itself all this is good and but the logical outcome of the introduction of machinery. It means lower unit costs and more wealth. Any force of society which attempts to turn back this progress, or halt, or even slow it up is contending with the inevitable. Such a factory as we have outlined is unquestionably the type of the major production method of the near future throughout the world under any form society may take.

Re-enter the Human Being.

So far we have no problem. But the moment that we substitute in the ideal factory which we have sketched the human being as he exists in the world today, we have our problem. People who have been no less pioneers and discoverers in the field of both general and social psychology than Mr. Taylor was in the mechanics of business organization, have found certain principles as basic as Mr. Taylor's and which spring from quite other roots. These equally fundamental principles center in this statement: the days of compulsion—the days of service without consent, are over. In tremendous areas compulsion still exists. We are still conscripted into the world. We are still in great areas of our lives the unconsulted objects of powerful forces. With all our magnificent engineering achievements and somewhat more slowly developing common sense, we are still individually and collectively the apparent sport of earthquake or lightning. When we have once decided to take passage on the sea, we have, so to speak, enslaved ourselves to the possible storms at sea. But in all those areas of life wherein man deals with man, great breaches have been made in the ranks of compulsion. We find, however slowly and haltingly, through the decades a steadily increasing assertion of the right both of the individual and of the individual in groups to give his consent to that which from any other human quarter it is desired him to do.

Consent from the point of view of life in the factory has two main types: individual consent and group consent.

As to individual consent, in some cases it is of the type of the traveler who decides to take ship, abandoning at the factory gate, as the other does at the dock, the right of being consulted by the management as the other does the right of being consulted by the captain. In other cases, continuous rights of consent are still retained.

As to group consent, it is of two kinds: the consent of the factory group by itself, and the consent of the factory group as a part of an inter-factory group.

The most casual study of the whole principle of consent will show that it always tends to strike its roots into wider and wider areas. It is the failure to recognize this principle, for example, which makes the present Rockefeller plan in Colorado a sociological joke and in the future, as in the past, likely to hold a sociological tragedy.

I think there will be little debate among any of us as to the general proposition that a free man—a consenting man—is the more desirable worker. Where we have broken down in imagination is in failing to realize that organized consent as well as individual consent is the basis of a more efficient group. We have been accustomed too much to think of democracy as almost necessarily a mere crude expression of untrained information through votes. Almost nothing has yet been attempted to build up a finer texture of democracy through self-training groups, constantly growing in strength through the consideration of scientifically accurate data.

Another error which we have lazily accepted as a failure of democracy is the idea of life as a fairly static thing. This error is clearest seen in the common statement that certain types of people, certain whole groups of people as well as certain individuals "are not worth any more." The reason they are not worth any more is largely because no adequate educational process has been tried. The theory is disproved by our immigrants when they are given the right chance. It is disproved in the tremendous progress the children in our schools make over the status of their parents. It is disproved above all by the absurd implication that human beings are less the field of the inventive organizer than machinery. More than any other one thing, life is an educational process and it is only when life is artificially restrained, artificially hampered, that, because the educational process is lacking, we wrongly think of life as static and of classes as efficiency castes.

The problem then is to combine, not through failure to come to grips and not through hostilities, but in constructively organized ways, the latest developments of efficiency in production with the latest developments of the science and art of democracy.

A primary standard then by which I should judge scientific management would be to consider whether or not the scientific manager and the student of social psychology, who, in shorter terms, might be called "the man of affairs," were jointly addressing themselves to the solution of this problem—the relation between efficiency and consent—in each particular industrial concern; and whether they were recognizing that the ultimate ideal will be the consent of the inter-factory group as the only one broad enough on which to build stable conditions of efficiency co-operatively with adequate safeguards to ensure that the human educational process shall not be turned back, stopped, or delayed any more than efficiency shall be turned back, stopped, or delayed. The educational problem is the fundamental problem of statesmanship and it is a minimum demand of that statesmanship that industry shall be a school of citizenship.

Conclusion.

Three points emerge clearly:

1. That craftsmanship in the old sense of the term is doomed.

2. That as craftsmanship can no longer furnish the base on which labor organization can grow, unionism, group action, will have to build itself up on a base as broad as the whole educative process itself instead of on the particular educative process of a particular craft. Even today the real strength of unionism is that unions are effective consumers' organizations with a primarily educational interest. As this fact gradually sifts through the minds of employers and managers they will gradually see that the most inefficient thing they can do is to fail to co-operate with such a great source of energy. The organizations of workers, on their side, can, when once that stand is taken, be counted on to consent to all that makes for efficiency. They will do this because in all legitimate enterprises—which are all enterprises where real service to the public is the test—the workers and the management will be equally concerned in perfecting the service. And at the same time, under constitutional industrial relations, they will contest the share in the management and the share of the product between themselves and with the consumer.

3. That the inter-relation of the forces we have outlined—the forces of efficiency and consent—is constantly taking place in the world today in all kinds of crude and unorganized ways. Here and there real elements of inter-organization between efficiency and consent appear. But for the most part the labor agreements in operation today are looked upon by employers as a necessary evil and by the workers as steps in their assertion of their rights as consumers and having little detailed relation to production processes. The beginnings of something far better than this are seen in the agreements in the garment trades wherein the manufacturers, the workers and the public are all represented as parties; and in certain kinds of organization which are being worked out in a few business concerns. There is still too little of real accomplishment in this direction to enable us to predicate with any certainty what the course of the development in details of organization will be by which efficiency and consent are made continuously revitalizing agents for each other.

Yet I believe that the point has been reached where it is profitable to attempt to gather together such experience as has been gained and relate it to the probable development of the next few decades.

With this purpose in view, I submit the accompanying chart.

This chart, it should be constantly borne in mind, is neither a dogmatic nor propagandist document. It is merely a working hypothesis by which to test out the facts of business as they occur daily at the desks of managers and at the trade union council tables, or in the occasional assemblages of unorganized labor. The whole aim of this discussion, as I see it, would be falsified if we deluded ourselves into believing that in any seeming array of facts, we had found the truth. The only unforgivable thing would be that we, as social scientists, neglect to take into consideration any facts of the moment connected with all the forces that do exist; the only thing that seems to me axiomatic is that when forces do exist, they are better when organized, trained, educated, developed and enlisted in an effective way—anything you like—rather than allowed to play among and upon us blindly.

The picture of these forces submitted in this chart may be summarily commented on, as follows. In every form of factory there are human forces at work which, whether they are organized or not, are of at least equal importance with the forces governing sales, production, and finance. These forces take the two aspects of relationship to a growing intelligence on the part of the managers and a growing intelligence on the part of the employees.

Where these forces are organized they may take the form shown on the chart under the personnel heading at the left end of the factory line and under the co-operative association heading shown at the right end of the factory line. The relation between efficiency and consent is provided for, in the form of organization shown, through the relationship between the research department of the education division and the determining boards and wage boards. The research department is where plans of organization are worked out and where work analysis is done. The determining boards and wage boards, acting on the scientific facts put before them or the nearest approximation to such facts that can be obtained, sanction the findings in the name of the interests of all concerned.

The facts thus put by the research division before the determining boards and wage boards furnish the material for the whole structure of organization and become an inescapable factor at every debatable point. Thus, if appeal be taken from any findings of a determining board, or wage board, to the arbitration board shown on the chart, the case is necessarily considered in the light of the best available facts.

Related to the factory, sometimes by formal agreement and sometimes through the entirely unorganized relationships of its individual members, are the local and district unions, or even the mere incoherent thoughts and feelings of unorganized labor. As organization begins to take any shape at all, it begins to crystallize into some form of a shop-union council wherein the interests of the factory and of the local and district unions are to some extent formally organized. In such forms of organization as the garment trades, the shop union relationship has formally added to it the third relationship of the public.

The questions which come before such a shop-union council divide broadly into questions affecting the conditions of work and questions affecting pay. In the shop-union council's consideration of these questions, the findings of the determining boards and of the wage boards are before it so that here again the best available facts necessarily form the material of the discussion.

As to conditions of work, experience so far tends to show that all questions are arbitrable; namely, they are capable of being decided by an impartial third party on the basis of the facts presented.

Questions of pay, on the other hand, are still so unsupported by scientific basic facts as to be a matter of conciliation rather than of arbitration.

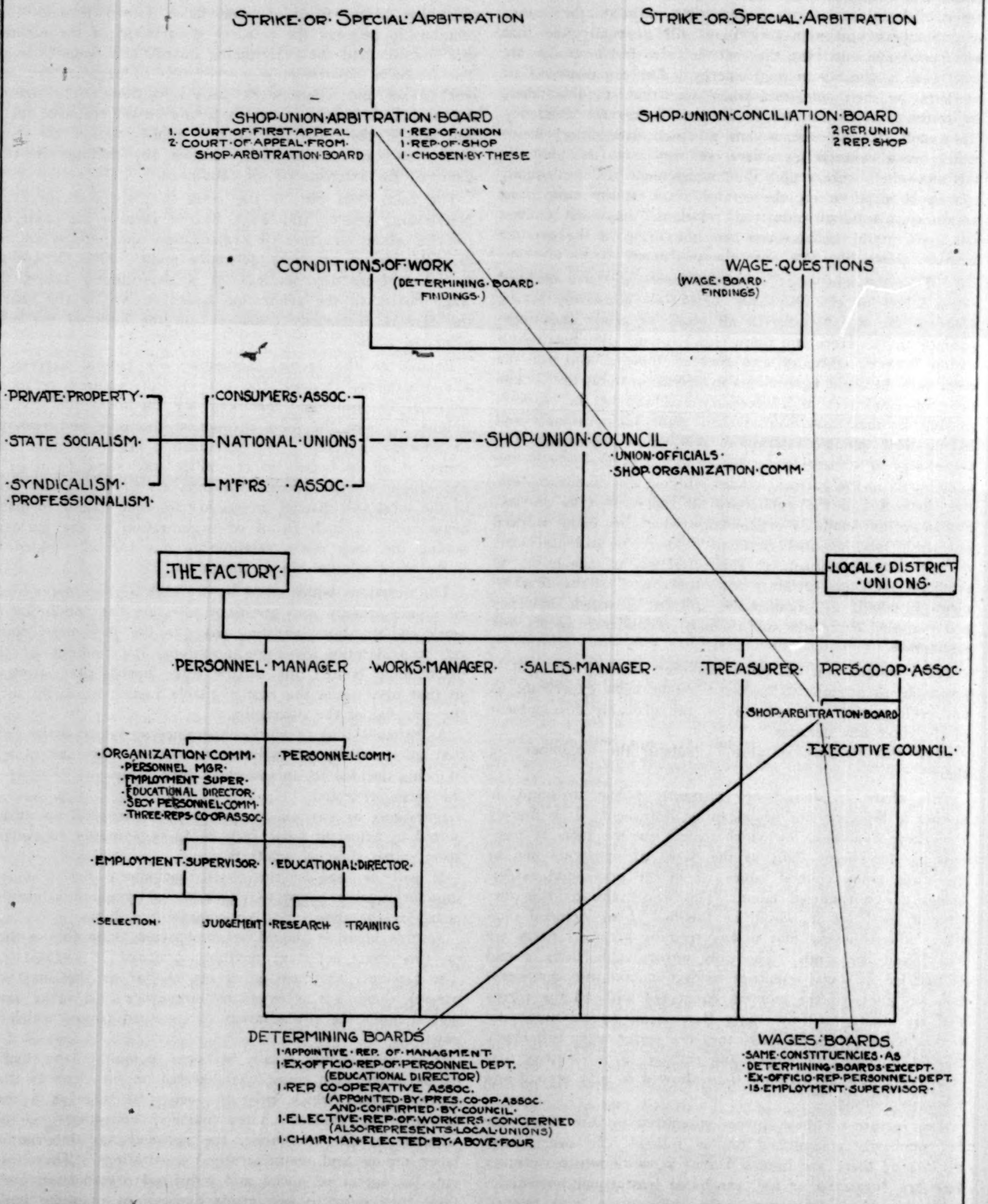
It will be seen in the chart that appeal lies from the shop arbitration board to either the shop union arbitration board or the shop union conciliation board.

At this point, it should be emphasized again that nothing on this chart indicates anything artificial in organization. The attempts that are going on, so far as the chart expresses them, are attempts to strengthen and make saner and sounder the organization of untamed forces which do exist.

This point should equally be borne in mind in the relation of the shop-union council as depicted on the chart to those natural forces which exist in society at large in a more or less unorganized state; namely, consumers' control, whether private or public, the national and international labor unions and manufacturers' associations. These present day forces of social and industrial organization are in their turn more or less crude expressions of three underlying forces shown to us by social psychology, which will

POSSIBLE·RELATIONS·BETWEEN·FORCES·OF·EFFICIENCY·&·CONSENT

ROBERT·G·VALENTINE



in all probability work out between them the society of the future. These three basic drifts appear to be:

1. The fundamental soundness of the principle of private property. This element takes into account the fact that it is a basic instinct of human nature for the individual to desire possession.

2. The force of state socialism. This force takes into consideration the fact that it is equally a basic instinct of human nature to desire to work out things in concert with one's fellows. An excellent example of state socialism at present in practice is the public school system.

3. The force of syndicalism. This force takes into consideration that basic instinct of human nature which leads us to desire to share in the control of the methods of production which we are concerned in and in distribution of the product. An excellent example of this instinct in present day practice is supplied by the whole field of professionalism as seen concretely in medical societies and bar associations.

Such a study as we have outlined here of the forces at work in the world and of our duty to attempt to organize them exactly as the student of electricity has organized that force, makes it the job of the industrial statesman to recognize first of all that there are facts of democracy as well as facts of efficiency, and to see to it, so far as it is humanly possible, that each group of facts is related to the other in organized and efficient ways.

Applied scientific management, then, which does not relate its science to the desires and to the thoughts of all connected with a concern in all their relations, either organized or in process of organizing, is not true to the Taylor principles.